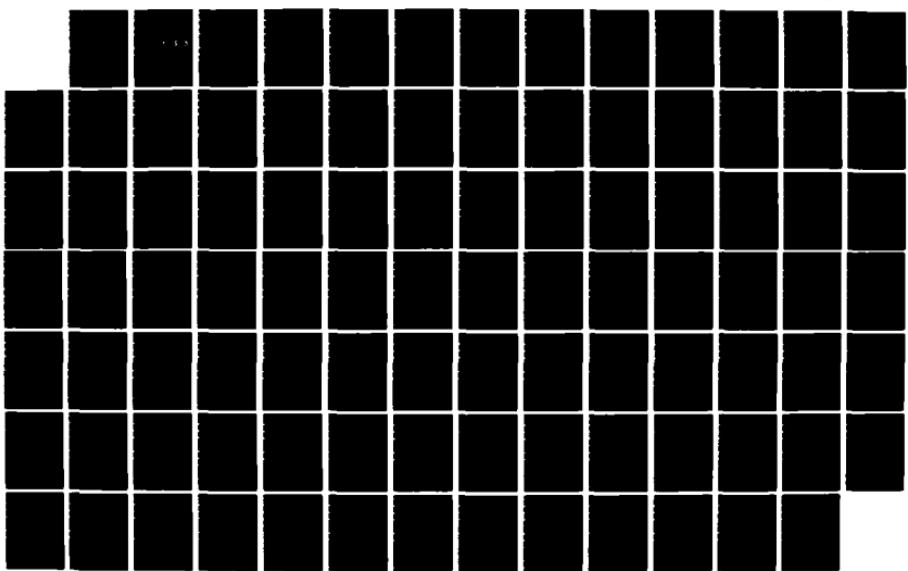


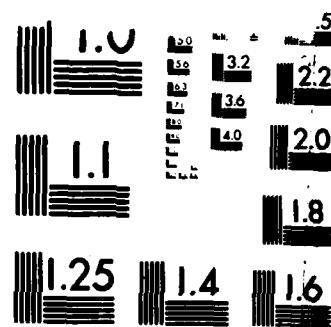
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# THESIS

AN ANALYSIS OF THE CONTRIBUTING FACTORS  
TO THE FISCAL YEAR 1985 MCDOSET ERROR RATES  
OF THE MARINE CORPS INFANTRY BATTALION

by

Craig Grotzky

March 1986

Thesis Advisor:

Thomas G. Swenson

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personnel chief, and the number of years that the personnel chief had held that position in the battalion.

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An Analysis of the Contributing Factors  
to the Fiscal Year 1985 MCDOSET Error Rates of the  
Marine Corps Infantry Battalion

by

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Submitted in partial fulfillment of the  
requirements for the degree of

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## ABSTRACT

Marine Corps Order 7220.13D prescribes the regulations and procedures concerning the disbursing on-site examinations of Marine Corps organizations. This order created two Marine Corps Disbursing On-site Examination Teams (MCDOSET), one assigned West Coast responsibilities, and the other assigned East Coast responsibilities. The examinations are conducted to determine the correct disbursement of funds to active duty Marines, and error rates are assigned accordingly. This thesis is a descriptive examination of contributing factors to the MCDOSET monetary error rates in Marine Corps Infantry Battalions. From the data accumulated by this study, it was determined that the primary contributing factors to the error rates are the total number of personnel performing their duties in the battalion personnel office, the number of years of supervisory experience of the personnel chief, and the number of years that the personnel chief had held that position in the battalion.

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## I. INTRODUCTION

### A. DISCUSSION

On 1 April 1959, the program for the on-site examinations of military pay records and related personnel records of Marine Corps personnel serviced by Marine Corps disbursing offices was established. The on-site examinations of each reporting unit within the Marine Corps occur annually, and are conducted in sufficient depth to:

- Determine that the sum of the cash and cash items on hand on the date of the cash verification inspection are, in fact, the amount for which the disbursing officer is accountable;
- Detect fraudulent practices;
- Appraise the effectiveness of systems and procedures, and determine compliance with governing regulations;
- Examine imprest fund transactions;
- Appraise internal controls and the general security over funds entrusted to disbursing officers;
- Determine whether regulations governing pay and allowance entitlements of military personnel are correctly interpreted and applied, and that payments made pursuant to these regulations are proper;
- Determine whether records, accounts, and returns are accurate, complete, and reflect the current status of fund accountability [Ref. 1].

The annual inspections referred to above are conducted by Marine Corps Disbursing On-site Examination Teams (MCDOSET). These teams, which consist of personnel who have demonstrated sustained superiority in the disbursing field, inspect each

Marine Corps reporting unit on a yearly basis. Based upon their inspection, the MCDOSET is able to assign error rates to each reporting unit, and to compute a dollar value corresponding to the error rate. An in-depth analysis of the methodology used by MCDOSET will be discussed in the next chapter.

Because of the MCDOSET's assignment of dollar values to error rates, the MCDOSET inspection is of paramount concern to every reporting unit commander, and to every reporting unit personnel officer. Moreover, the results of MCDOSET inspections are provided to the Commandant of the Marine Corps. Clearly, the results of the MCDOSET inspection reflect directly upon the reporting unit's competence in executing the Department of Defense directives pursuant to disbursing and personnel matters.

#### B. PURPOSE OF THE STUDY

The purpose of this study is to present an exploratory analysis of the MCDOSET error rates for fiscal year (FY) 1985 within the Marine Corps Infantry Battalion, and the corresponding contributing factors for the respective error rates. For the purpose of this study, "error rate" refers to monetary error rate, i.e., an error which results in the wrongful distribution of funds. The infantry battalion was chosen as the reporting unit to be analyzed for a number of reasons:

- It is the focal point of the Marine Corps in accomplishing its mission of locating, closing with, and destroying the enemy by fire and close combat.

- All combat service support directly or indirectly involves support of the infantry battalion.
- The primary mission of Marine Corps Aviation is close air support--in other words, to support the Marine Corps Infantry.
- Each type of Marine Corps reporting unit, e.g., the infantry battalion, reconnaissance battalion, headquarters company, headquarters battalion, force service support group, etc., has within them a unique set of factors which contribute toward their error rates. For example, since an infantry battalion deploys overseas in accordance with the rotation program, some MCDOSET errors could be expected to be the result of inaccuracies in the reporting of the family separation allowance, whereas family separation allowance is not normally a reportable item for a headquarters company. Consequently, a definitive set of factors which contribute to the MCDOSET error rates in all types of Marine Corps reporting units would be very shallow, if not inaccurate.
- Since infantry battalions deploy overseas for six months every two years, more pay-related unit diary entries are reported for the individual Marine, e.g., foreign duty, family separation allowance, and basic allowance for quarters.

FY 1985 was selected for two reasons. First, it is the most current year for which results of the MCDOSET inspection are available. Secondly, identifying variables which were contributing factors for the battalion's error rates in fiscal years prior to 1985 would be beyond the scope of this study.

The specific questions which will be addressed in this study are: (1) What were the MCDOSET error rates and the corresponding dollar values of the MCDOSET error rates for the Marine Corps Infantry Battalion for fiscal year 1985? (2) What were the primary contributing factors to the error rates? and (3) By making adjustments in the contributing factors, can the MCDOSET error rates be reduced?

### C. NEED FOR THE STUDY

Although the MCDOSSET conducts inspections, determines error rates, converts error rates to a dollar value, and states major categories of errors, contributing factors are not addressed [Ref. 1]. However, when errors mean dollars wrongfully paid (or not paid), identification of error rate contributing factors, and the subsequent adjustment of the contributing factors, could lead to a decrease in the error rate, and consequently, a reduction in dollars wrongfully paid (or not paid).

A review of the monetary error rates and their corresponding dollar values for the nine Infantry Battalions aboard Camp Pendleton, California, which were used as the sample for this study, clearly shows that an analysis of causal factors would be desirable (Appendix A). For fiscal year 1985, the Camp Pendleton Infantry Battalions incurred a total of \$15,008 in monetary errors, as stated by MCDOSSET inspectors [Ref. 3 and 4]. This monetary amount represents a significant loss of funds to the individual Marine, or to the U.S. Government. Consequently, an analysis of possible contributing factors to the error rates may lead to a reduction in the error rates, and ultimately to a reduction in the monetary value of funds not correctly distributed.

As directed by Headquarters, U.S. Marine Corps, no infantry battalion will be addressed in this study by the identifying numbers for the battalion and regiment [Ref. 5]. Hence, the

battalions are labeled A through I, and this identification remains constant throughout this study.

#### D. THESIS ORGANIZATION

Chapter II will present an in-depth description of the MCDOSET's methodology used in their inspection, while Chapter III will describe and justify the methodology used in this thesis. A description of the MCDOSET's methodology will clarify how error rates, and their corresponding dollar value, are attained.

Chapter IV will present an in-depth analysis of the data collected in two main categories: (1) the error rates for the infantry battalions, obtained from the Marine Corps Disbursing On-site Examination Team at Capt Pendleton, California; and (2) the data obtained from a survey of the battalion personnel officers with survey questions oriented toward identifying factors contributing to the error rates. Next, the two data categories will be compared through a graphical analysis to identify significant contributing factors to the error rates, and the expected results of the data analysis will be compared to the observed results.

Chapter V will provide conclusions drawn from Chapter IV, and offer appropriate recommendations for reducing error rates. Supporting facts and figures are presented in Appendices A through F.

## II. THE METHODOLOGY OF THE MCDOSET

### A. DISCUSSION

An understanding of the methodology of the MCDOSET inspection entails an explanation of the Marine Corps Infantry Battalion personnel office which the MCDOSET inspects, and to which error rates are assigned. Consequently, this chapter will: (1) address the organization, mission, and dynamics of the battalion personnel office; (2) describe the MCDOSET inspection in general; and (3) describe the MCDOSET inspection in detail, to include the topics of the T-audit, the assignment of errors, and the analysis of errors.

### B. MISSION AND ORGANIZATION OF THE BATTALION PERSONNEL OFFICE

#### 1. Mission of the Battalion Personnel Office

The mission of the battalion personnel office is to maintain cognizance over all personnel administration within the organization [Ref. 6]. Specifically, the battalion personnel office performs the following five functions:

- **Personnel Assignments:** The battalion personnel office ensures that all available personnel assets are equitably apportioned among the battalion's companies, and that the battalion's personnel assets do not fall below assigned staffing goals.
- **Maintenance of Personnel Records:** All service records are maintained and controlled by the battalion personnel office, with all entries into the service records required by current Marine Corps directives being made in a timely and accurate manner.
- **Management of the Joint Uniform Military Pay System and the Manpower Management System (JUMPS/MMS):** The battalion

personnel office manages and controls the JUMPS/MMS within the battalion, and is tasked to establish a managerial program to ensure compliance with the current edition of Marine Corps Order P1080.35. JUMPS/MMS is the database system by which the battalion personnel office enters all data on the Marines in the battalion pertaining to pay-related items. For example, if a Marine returns from overseas duty, the battalion personnel office would make the following entry "STOP FSA ED 860320," i.e., stop paying this Marine his family separation allowance (FSA) effective 860320. This pay adjustment would be made in the Marine's next paycheck.

- Order writing: Order writing for the individual Marine is coordinated with higher headquarters by the battalion personnel office, with particular attention being given to the timely and accurate detachment of personnel in the execution of reassignment orders.
- Administrative Support to Individual Marines and to Company Commanders: This type of activity involves coordinating and resolving all administrative matters which occur within the battalion, and serves as the focal point of expertise for Marine Corps administrative matters.

## 2. Organization of the Battalion Personnel Office

The battalion personnel office is composed of five elements: the personnel officer, the personnel chief, the service records book section, the unit diary section, and the personnel receiving and order writing section, each of which will be discussed below. Because of MCDOSSET's emphasis on service records and the unit diary section, greater attention will be given to these two areas.

### a. The Personnel Officer

The personnel officer serves under the direct staff cognizance of the battalion's S-1 officer, and as a special staff officer for the commanding officer. This officer's primary responsibility is to supervise the activity

of the personnel office to ensure that all actions required by Marine Corps directives are carried out. This supervision includes the following:

- JUMPS/MMS reporting
- Personnel accounting
- Service records
- Order writing
- Personnel assignments
- Morning reports
- Separations
- Reenlistments
- Check-in/Check-out procedures
- Fitness report preparation
- Leave reporting
- Preparation of personnel rosters
- Identification cards
- Meal cards
- Administrative action forms
- Administrative support to the companies

b. The Personnel Chief

The personnel chief serves as the senior administrative assistant to the personnel officer, and supervises all activities of the battalion personnel office outlined in paragraph 2a above. He is also tasked to organize training sessions to ensure that the professional qualifications of Marines assigned to the personnel office are maintained. He must control the flow of paperwork, establish priorities,

and supervise tasks to their completion. He is tasked to establish a system of review to ensure that all deadlines are met, and he serves as the contact point for all enlisted personnel of the companies within the battalion.

c. The Service Records Section

The service records section is of paramount importance in the MCDOSET inspection. The service records of the individual Marine house the documents which are the authority for entries to be input into the JUMPS/MMS, which in turn increase or decrease a Marine's pay. The service records section performs the following five functions:

- Maintains service records in accordance with current Marine Corps directives: In this regard, the service record section ensures that all applicable documents are housed correctly in the service records and that, if required, the correct entry applicable to that specific document is entered into the service record.
- Controls service records: In this regard, a system of controlling service records is established so that the commander may have access to any service record at any time.
- Performs the join audit: This function entails auditing in detail the service records of all new joinees, with the emphasis being on the resolution of any pay discrepancy which may be detected. If a pay discrepancy is detected, the corrective documentation can be completed immediately, with the required signature of the Marine.
- Corrects service records: Corrections are made upon detection of the error, with all errors verified by the personnel chief and the individual Marine.
- Audits the leave and earning statement, and the visual audit sheet: The service record section is required to audit the leave and earning statement on a monthly basis, and to audit the visual audit sheet with the Marine present on a yearly basis. This process ensures that on a monthly basis, all pay-related information in the service record is checked for correctness, and that on a yearly basis, all database information, including non-pay-related items, is checked for correctness.

d. The Unit Diary Section

The unit diary section is the focal point for the MCDOSET inspection; its basic operation is as follows. Once the unit diary section receives a supporting document, i.e., a form which states a Marine is entitled to (or no longer entitled to) a certain level of pay or allowance, the applicable information is entered into the JUMPS/MMS database system. This information is entered via the automated data processing equipment (ADPE-FMF) of the Fleet Marine Force, which is a keyboard terminal unit. The information is stored on a diskette, and then taken to the local automated services center (ASC). The ASC transfers the information onto magnetic tape which is forwarded to the local administrative control unit, who then transfer the information into the JUMPS/MMS master record. The Marine would then see the change in his next paycheck.

Specifically, the unit diary section performs five primary functions:

- Timely and accurate reporting of all JUMPS/MMS reportable information as required by the current edition of Marine Corps Order P1080.35. The battalion must submit a "diary," i.e., a diskette containing reportable information to the ASC on a daily basis.
- Prompt, accurate accountability of all reported data.
- In-depth auditing as required by current directives.
- Complete, accurate processing of all JUMPS/MMS machine-generated management reports.
- Receive, audit, and consolidate the company morning reports on a daily basis, ensuring that manually generated data agrees with the data generated by the database.

e. The Personnel Receiving and Order Writing Section

The daily operation of the personnel receiving and order writing section encompasses the following:

- Receipt and processing of incoming and outgoing correspondence pertaining to personnel and administrative matters.
- Provision of clerical assistance to other sections of the battalion personnel office.
- Receipt of personal requests: This entails the preparation of all personnel requests as requested by the individual Marine.
- Order writing, including orders notification, orders processing, check-out procedures, detachment coordination, and the preparation and issuance of all orders as required.

C. THE DYNAMICS OF THE BATTALION PERSONNEL OFFICE

1. Discussion

The previous section of this chapter explained the mission and the organization of the battalion personnel office. This section will focus on the personnel comprising each section within the battalion personnel office, the directives with which the battalion administrative personnel must comply, and the document flow within the battalion personnel office.

2. Personnel Comprising the Sections

a. The Unit Diary Section

The unit diary section is comprised of five personnel, all of whom are assigned the military occupational specialty (MOS) of 0131, unit diary clerk. The unit diary chief is of the grade E-5. Performing duties under him are four clerks: one E-4, one E-3, and two with the grade of E-1.

b. The Service Record Section

The service record section is comprised of four personnel, all of whom are assigned the MOS 0121, service record book clerk. The senior Marine in this section has the grade of E-4. Working directly under him is one E-3 clerk, and two E-1 clerks.

c. The Personnel Receiving and Order Writing Section

This section is comprised of five personnel, all of whom are assigned the MOS 0151, correspondence and orders clerk. The senior Marine is grade E-5. There are four Marines serving under him: two E-4's and two E-3's.

3. Directives Which Govern the Sections Within the Battalion Personnel Office

The directives which govern the sections of a battalion personnel office are numerous, and there is much overlap in the applicability of the directives from section to section. However, the primary directive governing the unit diary section is Marine Corps Order P1080.35, the Personnel Reporting Instructions Manual. The primary directive governing the service record section is Marine Corps Order P1070.12, the Individual Records Administration Manual. Moreover, it is from these two directives that the nucleus of the MCDOSET inspection is derived. A comprehensive list of directives governing the battalion personnel office, and for which the MCDOSET inspects to ensure compliance, is provided in Appendix B.

#### **4. Document Flow**

A graphical illustration of the document flow, with a detailed explanation, is provided in Appendix C.

#### **D. GENERAL DESCRIPTION OF THE MCDOSET INSPECTION**

In general terms, once the MCDOSET arrives at a battalion, they inspect the service records and the unit diary to ensure that all Marines are receiving the allowances to which they are entitled. All entries reported on the unit diary must be substantiated by a supporting document in the service record. All supporting documents in the service record must have had the correct corresponding unit diary input in a timely and correct fashion pursuant to the regulations listed in Appendix B. Only a representative sample of approximately five percent of the total service records are inspected. The size of the sample is determined by the Marine Corps statistician.

#### **E. DETAILED DESCRIPTION OF THE MCDOSET INSPECTION**

##### **1. Individual Records Examination**

To complete this phase of the inspection, the MCDOSET uses an audit form called the T-audit. This procedure ensures that the service records are thoroughly reviewed, and it results in the detection of all errors contained in the service record [Ref. 7]. The leave and earning statement is used as the base document against which all supporting documents are verified for correctness, and vice versa. The leave

and earning statement reflects the data input by the unit diary section. It is generated monthly, therefore the data is not older than 30 days.

The "T" is formed by listing the 23 audit categories on the left side of the "T." These categories are the same as those listed on the leave and earning statement. The inspector ensures that each audit category has been correctly reported for the individual Marine pursuant to the regulations listed in Appendix B, by checking the entry on the leave and earning statement against the data on the appropriate supporting document filed in the service record. The right side of the "T" is used to make any notes about detected errors, and to make computations of any overpayment or underpayment detected. The 23 audit categories are:

- grade
- pay entry base date
- clothing and maintenance allowance
- expiration of current contract
- state tax code
- page 3 of the service record, the chronology
- page 11 of the service record, administrative remarks
- page 12 of the service record, offenses and punishments
- page 13 of the service record, the record of conviction by courts-martial
- record of emergency data
- leave and earnings statement
- visual audit sheet

- veteran's educational assistance program
- legal residence certificate
- IRS form W-4
- basic allowance for quarters
- COMRATS
- assignment to government quarters
- termination of government quarters
- separation/enlistment voucher
- statement of understanding
- prior contracts
- DD form 1966, the personal history

## 2. Assignment of Errors

An error occurs when an action prohibited by the directives listed in Appendix B occurs, or when an act prescribed does not occur. The MCDOSET assigns three types of errors: advisory, maintenance, and monetary, with this study focusing on monetary errors [Ref. 8].

### a. Advisory Errors

Advisory errors are those to which a monetary value cannot be applied, or which have a monetary value of less than \$1.00. These errors will include any differences noted in the comparison of disbursing and related personnel records, and require a verification by the disbursing and personnel officers.

b. Maintenance Errors

Errors of this nature involve lack of proper documentation or failure to record pertinent information in the service record.

c. Monetary Errors

Monetary errors are those which necessitate immediate adjustment to prevent a monetary loss to the government or to the individual, and they involve an amount of \$1.00 or more for each separate error. These discrepancies would include failure to record or report actions affecting the pay and allowance of a Marine, and/or reporting incorrect data. Upon detection of a monetary error, the inspector is immediately able to compute the dollar value of the error to that point in time. For example, if a Marine was promoted to E-4 on 851001, and this promotion was reported into the JUMPS/MMS system to become effective as of 851201, the inspector would sum all difference in monthly pay between and E-4 and E-3, and multiply this amount by the number of months since the change became effective. All monetary values assigned to errors are computed in a similar manner.

3. Analysis of Errors by the MCDOSET

Once the MCDOSET has completed their inspection, they present the results of their audit in the format depicted in Appendix D. All levels of command receive a report in this format for the activities under their cognizance. The battalion receives a report in this format, and a discrepancy

notice for each record in which an error was detected. The discrepancy notice instructs the battalion on how to correct the error, and the battalion's personnel office has 30 days to complete all action on all discrepancy notices. Note that the data presented in this format allows for computation of the monetary error rate, as depicted in Appendix D.

### III. RESEARCH METHODOLOGY

#### A. GENERAL

The aim of this research is to identify the MCDOSET error rates for the Marine Corps Infantry Battalions for FY 1985, identify conditions which existed in the battalions prior to the MCDOSET inspections by surveying the battalion personnel officers, and from analyzing the two sets of information just described, attempt to identify the conditions which were present which may have contributed toward the MCDOSET error rate.

Because it would have been beyond the scope of this study to obtain the MCDOSET error rates for all battalions in the Marine Corps, and to survey the personnel officers of all of the Marine Infantry Battalions, a representative sample was used. The sample used was the nine infantry battalions stationed aboard Camp Pendleton, California, which represents a sizeable sample.

Moreover, the MCDOSET error rates for the battalions stationed on the West Coast (the battalions used as the sample for this research) differ by no more than two percent from the battalions stationed on the East Coast [Ref. 5]. Due to the focus of this study being on a small number of battalions, rigorous statistical techniques, such as linear regression, would not be valid. Consequently, this study will describe what appears to be contributing factors

to the MCDOSET error rates. The type of data needed, as described above, required contacts with various Marine Corps organizations.

B. CONTACTS

Research for this study was accomplished by contacts with: Officials at Headquarters, U.S. Marine Corps, Code FDD, Washington, D.C.; the MCDOSET West Coast, Camp Pendleton, California; the Adjutant, First Marine Division, Camp Pendleton, California; and the personnel officers of the nine infantry battalions stationed aboard Camp Pendleton, California (through the use of a written questionnaire survey).

C. CONTACTS WITH HEADQUARTERS, U.S. MARINE CORPS, (CODE FDD), WASHINGTON, D.C.

Headquarters, U.S. Marine Corps, Code FDD, maintains operational control of the MCDOSET teams, establishes the MCDOSET policies, and establishes the MCDOSET inspection methodology [Ref. 1]. Matters which the MCDOSET teams are unable to resolve are referred to this headquarters. Because of the nature of this study, approval was required from, and received from, Headquarters, U.S. Marine Corps, Code FDD [Ref. 9]. Additionally, it was this headquarters section which authorized the MCDOSET, West Coast, to release the documents needed for this study. The documents consisted of the statistical analysis of detected errors from the FY 1985 MCDOSET inspections of the nine Camp Pendleton Infantry Battalions.

**D. CONTACT WITH THE MCDOSET, WEST COAST**

Contact with the MCDOSET, West Coast, stationed aboard Camp Pendleton, California resulted in the attainment of the MCDOSET error rates for FY 1985 for the nine infantry battalions stationed there. The error rate data for the sample battalions in the format provided by the MCDOSET, West Coast, is provided in Appendix E. Additionally, from contacts with MCDOSET, West Coast, information was obtained concerning the methodology of their inspections.

**E. CONTACT WITH THE ADJUTANT, FIRST MARINE DIVISION**

Because the sample battalions used for this study were stationed aboard Marine Corps Base, Camp Pendleton, approval to contact the battalion personnel officers (through the questionnaire survey) was requested from, and approved by, the First Marine Division Adjutant. Additionally, this contact resulted in the availability of information concerning the structure and operation of a battalion personnel office, and the completion of the questionnaire used as a basis for this study.

**F. CONTACT WITH BATTALION PERSONNEL OFFICERS**

Contact with the battalion personnel officers was made through the use of a written questionnaire which they completed during their Personnel Officer's Conference at Coronado, California during August 1985. The survey questionnaire was administered by the Adjutant of the First

Marine Division. The survey was designed to identify conditions which existed in the battalion 90 days prior to the MCDOSET inspection which may have contributed to the MCDOSET error rate of that battalion.

The 90-day time period prior to the MCDOSET inspection was chosen for the following reasons. First, it offers a specific timeframe from which the personnel officers could extract data from their records to answer the questionnaire. Secondly, the 90-day period prior to the MCDOSET inspection is the most crucial in terms of preparing for, and successfully passing, the inspection. For example, personnel turbulence within the battalion personnel office, or frequent deployments in the timeframe could have a negative impact on the battalion's MCDOSET error rate.

A written questionnaire survey was used vice the personal interview method for three reasons: (1) The use of the survey reduces the researcher's biases. For example, in a personal interview, the researcher may lead the person being interviewed into saying what he would like to hear. By using a survey, the responses are more likely to be based on fact, or a valid personal opinion; (2) The use of a survey is more economical, particularly where the researcher and those being interviewed are not located in the same geographical area; and (3) The survey can be designed to allow those being interviewed to express opinions without external influences such as the interviewer, an officer in charge, or a commanding officer.

The survey used in this study was designed to identify the conditions which may have contributed to a battalion's MCDOSET error rate. The questions asked on the survey were based upon the recommendations of the MCDOSET, West Coast; the Adjutant of the First Marine Division; and the experience of the researcher.

The survey included questions such as "How many days was your battalion's personnel section deployed for field duty in the 90-day timeframe prior to the MCDOSET inspection? Or, "How many school-trained personnel were working in your battalion's unit diary section in the 90-day timeframe prior to your last MCDOSET inspection?" The survey used is provided in Appendix F.

Per the recommendation of the MCDOSET, West Coast; the Adjutant of the First Marine Division; and the experience of the researcher; the survey did lean toward viewing the MCDOSET error rates in the infantry battalion as a function of the experience, turnover, and number of personnel performing duties in the battalion personnel office. However, questions were also oriented toward identifying the amount of time a battalion spent deployed for duty in the field, and the amount of extra duties that were assigned to the personnel officers. Also, there were questions which allowed personnel officers to express their own views on what they felt were the most significant contributing factors to the MCDOSET error rates. Consequently, the survey focused on

a wide range of conditions which may be contributing factors to the error rates.

#### G. SUMMARY

In summary, this chapter presented the research methodology of this study. Contacts were made with Headquarters, U.S. Marine Corps, Code FDD, Washington, D.C., who approved this thesis topic and authorized the MCDOSET, West Coast to release the FY 1985 MCDOSET inspection results of the battalions used as the sample for this study. Contact was made with the MCDOSET, West Coast, who released the results of the FY 1985 MCDOSET inspections of the sample battalions. These results are provided in Appendix E.

Contacts were made with the Adjutant of the First Marine Division who approved the use of written questionnaires to contact and question the Division's personnel officers. Then, contact was made with the nine infantry battalions aboard Camp Pendleton, California, through the use of a written questionnaire survey completed by the battalion personnel officers, to attempt to ascertain the conditions present within the infantry battalions which may have contributed to their MCDOSET error rates. The survey used in this research is provided in Appendix F.

To understand what the contributing factors to the MCDOSET error rates may have been, data on the conditions present in the battalions prior to the MCDOSET inspection, obtained from the surveys completed by the battalion

personnel officers, would be compared to the MCDOSET error rate statistics as supplied by the MCDOSET, West Coast, and presented in Appendix F. For example, questions which could be answered are: "Do battalions with lower error rates deploy to the field less, or do battalions with high error rates have a smaller number of school-trained personnel in their unit diary section?"

Because this study is descriptive and employs no rigorous statistical techniques, the analysis of data used to identify the contributing factors to the MCDOSET error rates are best presented as a graphical analysis. By graphing the error rates of each of the sample battalions against each of the corresponding prospective contributing factors, trends can be identified as to which prospective contributing factor actually is a contributing factor. A detailed explanation of this graphical analysis of the data is the subject of the next chapter.

#### IV. ANALYSIS OF DATA

##### A. GENERAL

To identify the conditions present within the battalions which may have been contributing factors to the MCDOSET error rates, the conditions present (obtained from the written questionnaire surveys) must be compared to the battalion error rates to determine any trends. This could best be accomplished graphically, hence, the focus of this chapter is on a graphical analysis of the data.

##### B. GRAPHICAL ANALYSIS

From the data on the questionnaires, completed by the personnel officers, 14 prospective (or candidate) contributing factors to the error rates have been identified. All 14 categories are quantifiable and can be graphed against the error rates. They are as follows:

- The total number of Marines working in the personnel office.
- The total number of school-trained administrative personnel working in the personnel office.
- The number of E5's and below (MOS 0121) in the personnel office.
- The number of E6 and E7's (MOS 0193) in the personnel office.
- The years of experience of the battalion personnel officer.
- The number of days the personnel section was deployed.
- The number of additional duties assigned to the personnel officer.

- The percent of the personnel officer's time taken by extra duties.
- The number of years the personnel officer had been in the battalion.
- The number of years the personnel chief had been in the battalion.
- The number of years of supervisory experience of the personnel chief.
- The number of MOS 0131 personnel turnovers.
- The number of personnel in the unit diary section.
- The number of school-trained MOS 0131 personnel in the unit diary section.

Graphing the error rates of the battalions against their corresponding values of each of the 14 categories of candidate contributing factors would indicate if there were a relationship between error rates and that specific category of contributing factor. In this study's graphical analysis, the monetary error rates of the nine sample battalions are represented on the X-axis, while the corresponding values of the single candidate contributing factor being graphed against error rates are represented on the Y-axis.

For example, it would be expected that as the error rate increased (represented on the X-axis), so would the number of days the battalion was deployed to the field (represented on the Y-axis). Graphically, one would expect to see the nine points on the graph, representing the nine sample battalions, form a fairly straight line at about a 45° angle to the origin.

Also in this study, the nine battalion error rates are graphed against only one of the 14 categories of candidate contributing factors at a time. Hence, analysis of data in this regard entails analysis of 14 graphs, each one graphing the battalion error rates against a single category of the 14 candidate contributing factors. Thus, the X values (error rates) on all 14 graphs are the same, while the Y values will differ on each graph since those values represent different categories of candidate contributing factors.

The graphical analysis of the data described previously is presented in Figures 1 through 14. Note that in each figure, the nine values of X increase as you move from right to left on the X-axis, the monetary error rates. These values correspond exactly to the order of the error rates as presented in Appendix A.

For example, in Figure 1 (see page 37), the first point corresponds to a monetary error rate of four percent (Battalion A's error rate from the X-axis), and 11 total personnel (Battalion A's total personnel from the Y-axis). The second point corresponds to an error rate of 6.67 percent (Battalion B's error rate), and 15 total personnel. Thus, the nine values of X not only represent the error rate in progressive order, but also the sample battalions A through I (in alphabetical order). So, moving from right to left along the X-axis, the first point on the graph represents Battalion A; the second point is Battalion B, etc.

A discussion of the relationship between the error rates and each of the candidate contributing factors as indicated by the graphical analysis is presented in the next section. Additionally, the expected result versus the actual result will be discussed.

C. RELATIONSHIPS BETWEEN ERROR RATES AND THE CANDIDATE CONTRIBUTING FACTORS

This section will discuss the relationships, if in fact any are indicated by the graphical analysis of the candidate contributing factors to the error rates. Each category of the prospective contributing factors will be addressed separately in the following paragraphs, one through 14. For each category of prospective contributing factors, it will be ascertained whether the graphical analysis supports the idea that a candidate contributing factor is, in fact, a contributing factor to the error rate. Also, the observed result of the graphical presentation will be compared to the expected result.

1. Monetary Error Rate in Relation to the Total Number of Marines (any MOS) in the Personnel Office

With the exception of the two points representing Battalions E and F, Figure 1 shows that the greater the number of personnel in the personnel section, the higher the error rate--a positive relationship. With the Table of Organization (T/O) authorizing 15 administrative personnel, those battalions at or below T/O strength generally had lower error rates, while the two battalions with the highest error

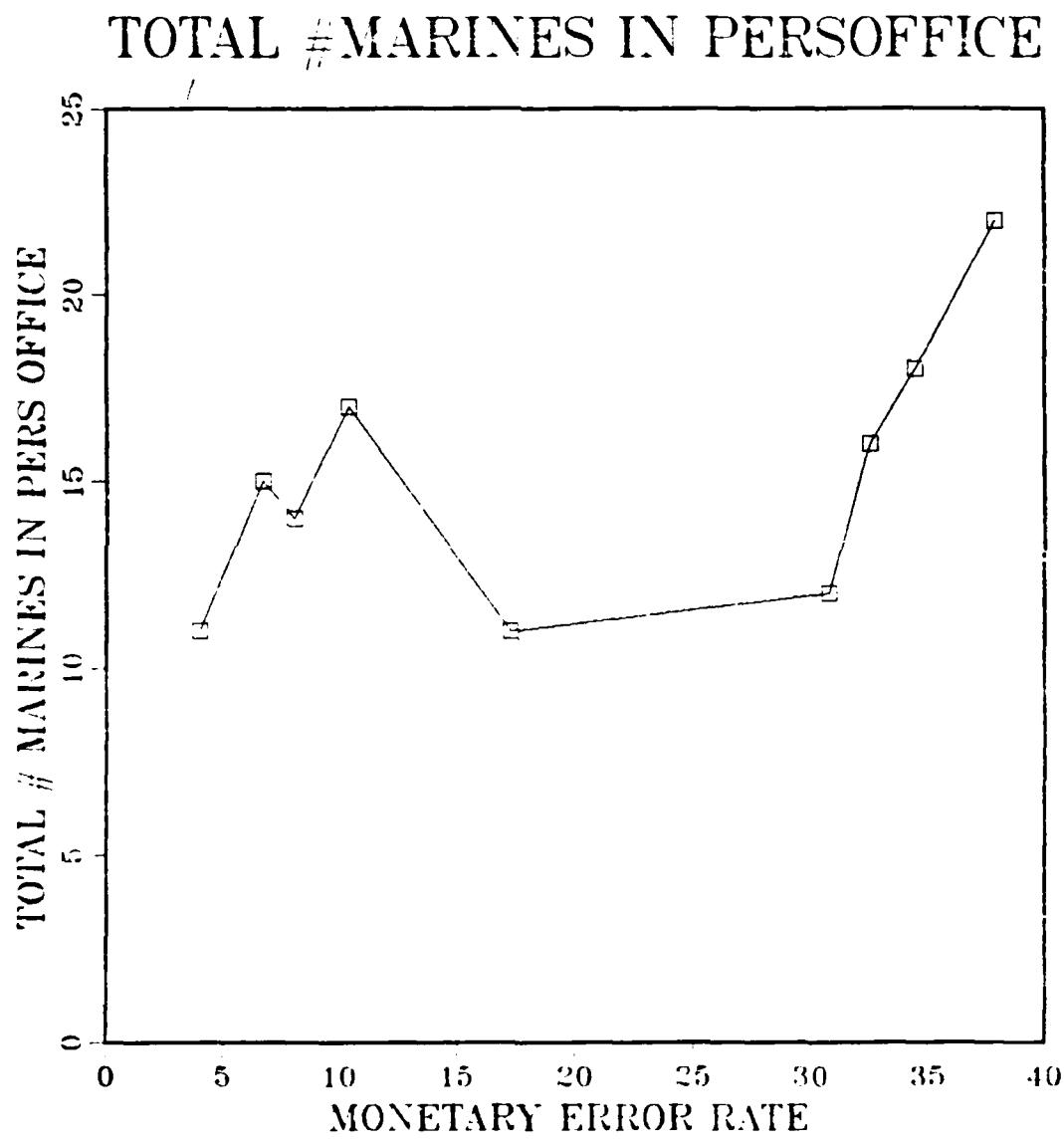


Figure 1. Monetary Error Rate in Relation to the Total Number of Marines in the Personnel Office.

rates also had the greatest number of personnel (exceeding the T/O strength).

No explanation can be given for the points represented by Battalions E and F. However, it should be noted that while both battalions had a small number of personnel, Battalion E has a respectable error rate of 17.24, while Battalion F has a fairly high error rate of 30.77. Hence, the difference tends to be split between the two battalions.

The observed result from Figure 1 differs substantially from the expected result. It would be expected that the error rate would decrease as the number of personnel increased. However, Figure 1 shows that this was not the case in this analysis--that the error rate had a tendency to increase as the total number of personnel increased. A partial explanation could be that as the number of personnel exceeded the authorized T/O strength, the positive results from the management and coordination efforts within the personnel office would decrease as the number of personnel to manage became larger.

In summary, the number of personnel working in the section appears to be a contributing factor to the error rates, based on the graphics of Figure 1. However, the observed result contradicts the expected result; it appears that the greater the number of personnel, the greater the error rate. In short, the law of diminishing returns appears to be

applicable in this case, although the graphic analysis is not extremely strong.

2. Monetary Error Rate in Relation to the Total Number of School-trained Administrative Personnel

Figure 2 shows that there does not appear to be any relationship between the total number of school-trained administrative personnel and the error rate. Although the battalions with the three highest error rates (Battalions G, H, and I) had the largest number of school-trained personnel, and three of the five battalions with the lowest error rates (Battalions A, C, and E) had the smallest number of school-trained personnel, the remaining three points are distributed indiscriminately. Moreover, the most school-trained personnel within a battalion was 13, and the least number was 10--a difference of only three. This difference is not large enough to determine any relationship between error rates and the total number of school-trained personnel. Consequently, Figure 2 indicates there is no relationship between the total number of school-trained personnel and the error rate.

The expected result differs from the observed result. It would be expected that the greater the number of school-trained personnel, the lower would be the error rate--a negative relationship. However, this is not the case, in that the graphical analysis shows that there is no relationship. A partial explanation could be that only three school-trained personnel separate the battalion with the greatest

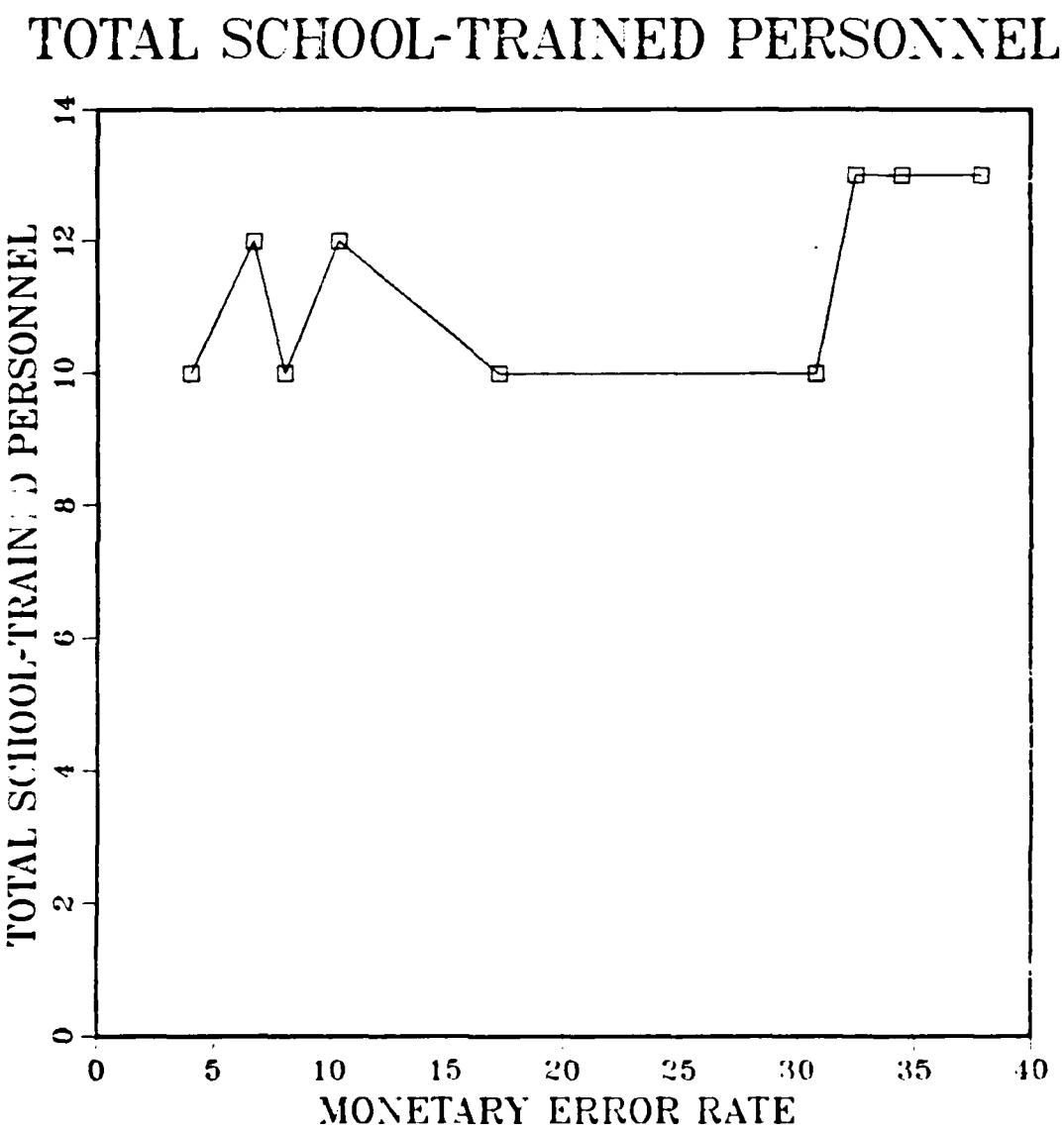


Figure 2. Monetary Error Rate in Relation to the Total Number of School-trained Administrative Personnel.

number of school-trained personnel from the battalion with the smallest number, and that three school-trained personnel will have no impact on the error rate, either positively or negatively.

3. Monetary Error Rate in Relation to the Number of E5's and Below (MOS 0121)

Figure 3 does not indicate that there is any relationship between the number of E5's and below (MOS 0121) and the error rate. It does indicate a slight positive relationship, however, it is weak. Although the three battalions with the lowest error rates (Battalions A, B, and C) had three of the four smallest number of E5's and below, the battalion with the second highest error rate (Battalion H) had the smallest number of 0121's. Also, the magnitude of the outlier representing Battalion H discredits the idea that there may be a positive relationship between error rate and the number of E5's and below. Although Figure 1 indicates a relationship between error rate and the total number of personnel working in the personnel office, Figure 3 does not offer any indication that error rate may be a function of a specific type of personnel (in this case, the E5's and below, 0121's). Although Battalion H has a small number of E5's and below, they have the second highest total number of personnel, which may account for their high error rate in Figure 1.

The observed result does differ from the expected result. It would be expected that as the number of E5's and below increased, error rates would decrease. However,

## E5 AND BELOW 0121S

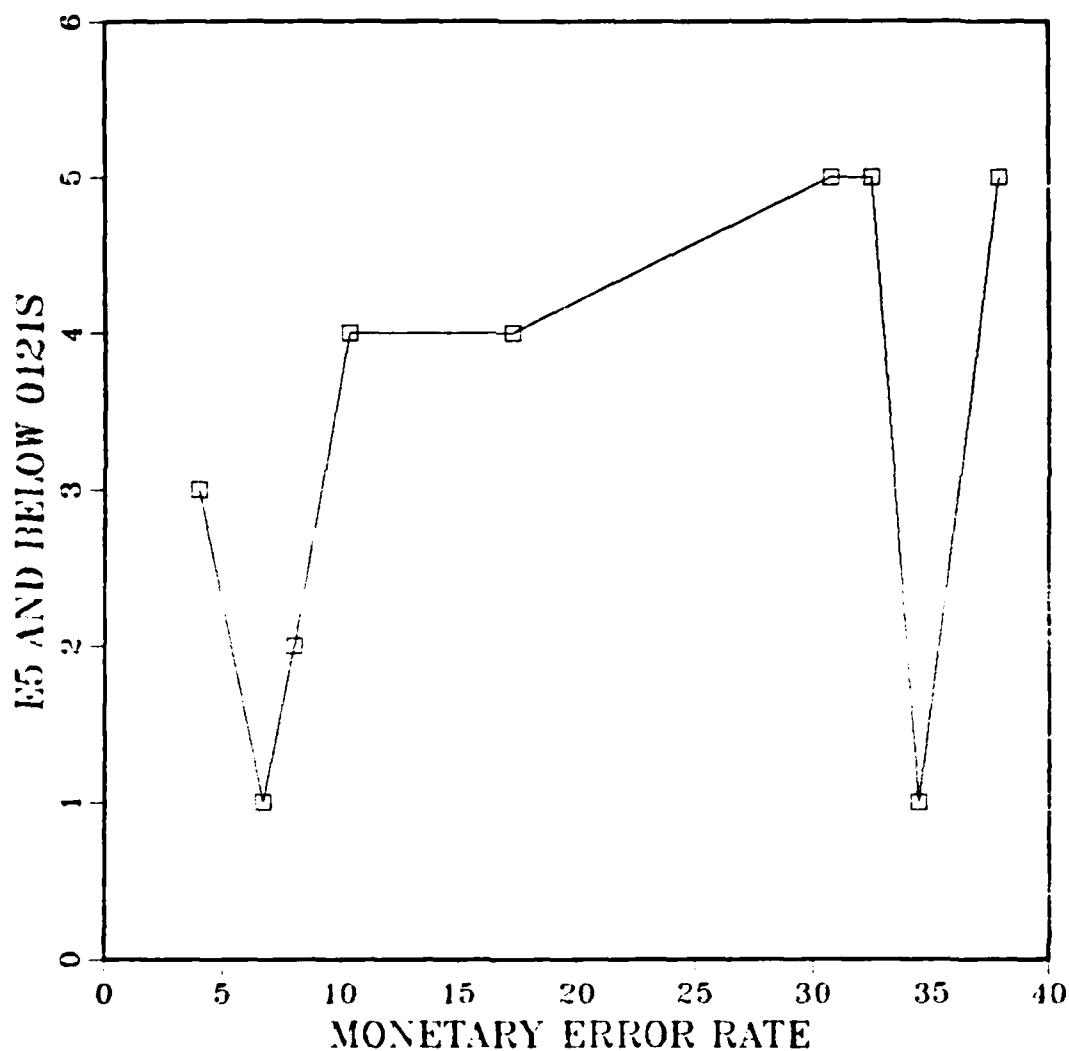


Figure 3. Monetary Error Rate in Relation to the Number of E5's and Below 0121's.

the graphical analysis does not support this. This could be because service record clerks may not have much impact on the outcome of a MCDOSET inspection since a majority of their duties is routine and closely supervised by the personnel chief. However, the potential exists for the service record clerks to affect the error rate.

4. Monetary Error Rate in Relation to the Number of E6 and E7 0193's

Figure 4 clearly indicates that there is no relationship between error rate and the number of E6 and E7 0193's. Each battalion in the sample had just one 0193, and the error rates ranged from four percent to 37.88 percent.

It would be expected that the error rate would decrease as the number of E6 and E7 0193's increased. However, because each battalion had only one 0193, neither a negative nor a positive relationship is shown. Clearly, no relationship exists between the error rate and the number of E6 and E7 0193's assigned.

5. Monetary Error Rate in Relation to the Years of Experience of the Personnel Officer

Figure 5 indicates that no relationship exists between the years of experience of the personnel officer and the error rates. Three of the five battalions with the lowest error rates (Battalions A, D, and E) had personnel officers with no more than two years of experience. Conversely, the battalions with three of the four highest error rates (Battalions F, G, and H) had personnel officers with no more than

## E6 AND E7 0193S

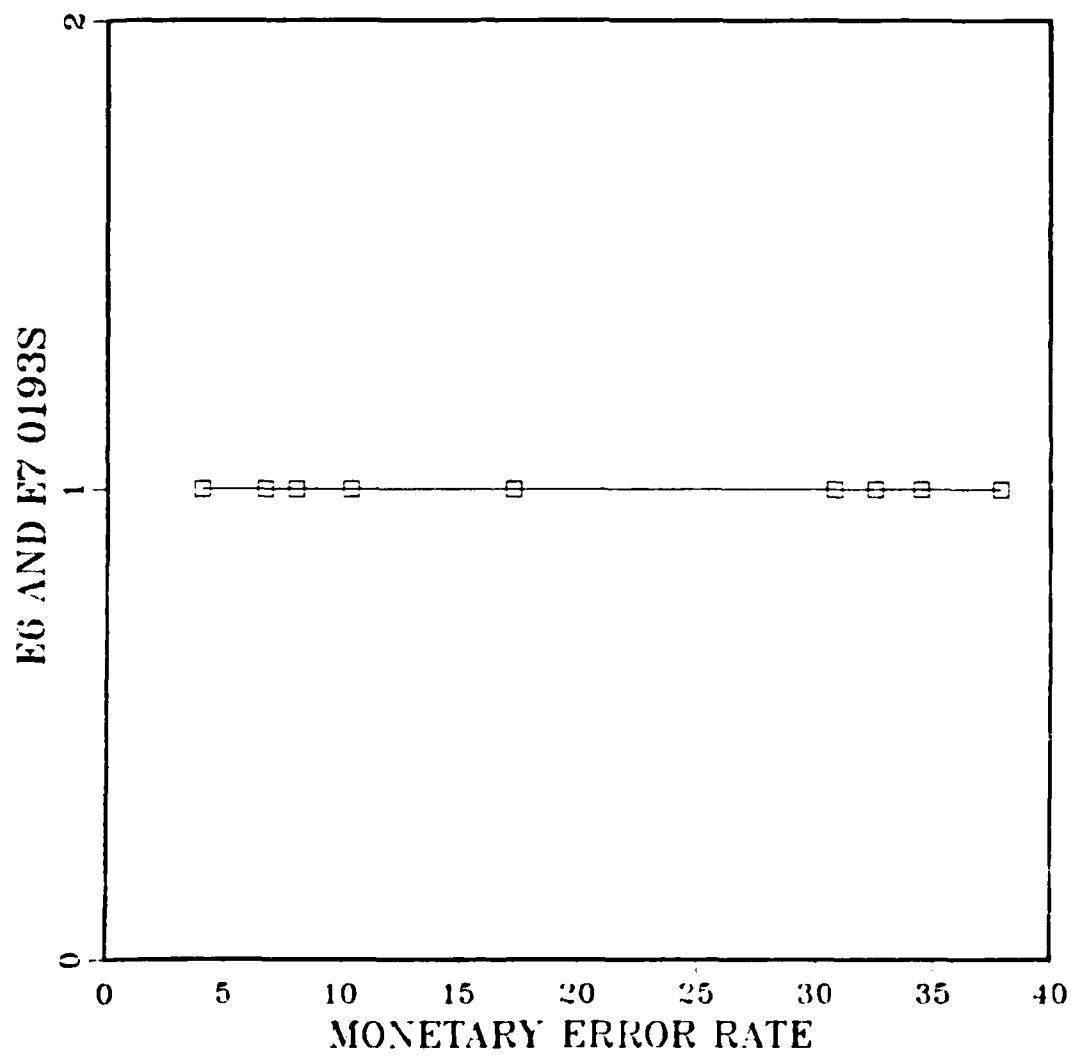


Figure 4. Monetary Error Rate in Relation to the  
the Number of E6 and E7 0193s.

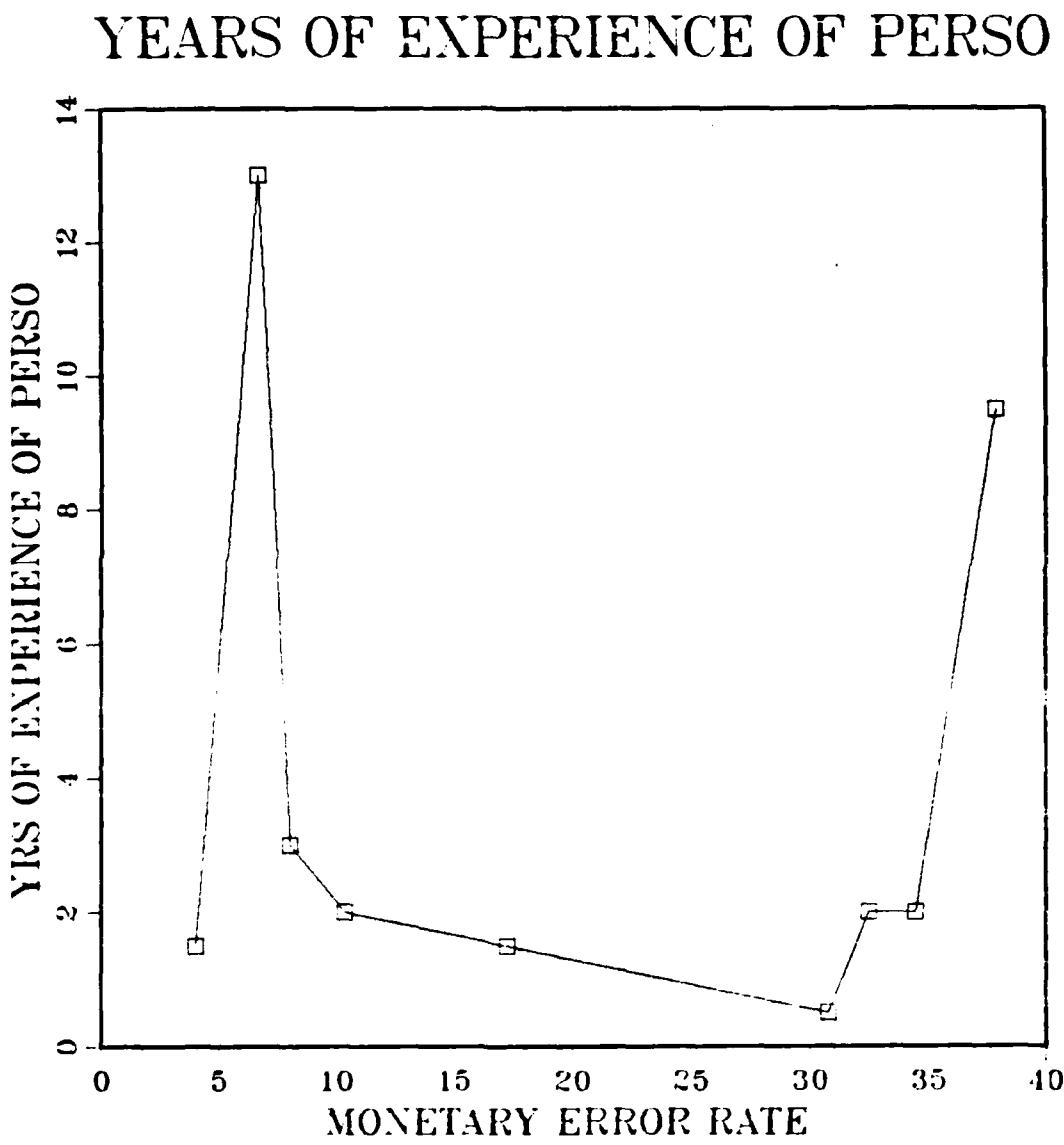


Figure 5. Monetary Error Rate in Relation to the Years of Experience of the Personnel Officer.

two years of experience. Finally, the battalion whose personnel officer had the greatest number of years of experience (Battalion B) had the second best error rate, while the battalion whose personnel officer had the second highest number of years of experience (Battalion I) had the highest error rate. Clearly, no relationship exists between the error rates and the years of experience of the personnel officer.

The observed results in this analysis differs from the expected results. It would be expected that as the number of years of experience of the personnel officer increased, the error rates would decrease. However, this was not supported by the graphical analysis. This may be partially explained by the fact that in this sample, seven of the nine battalions sampled had personnel officers with very little experience (under three years). However, the error rates ranged from 4.00 to 37.88.

6. Monetary Error Rate in Relation to the Number of Days the Personnel Section Was Deployed Aboard Ship, or for Duty in the Field

An analysis of Figure 6 indicates that there is no relationship between the error rate and the number of days the personnel section was deployed. Of the nine battalions sampled, only three deployed, which in itself does not offer enough information to form a conclusion. Battalion B was deployed for the greatest amount of time, yet they had the second lowest error rate. Conversely, Battalions G and I deployed for about one-half of the time of Battalion B, yet they incurred two of

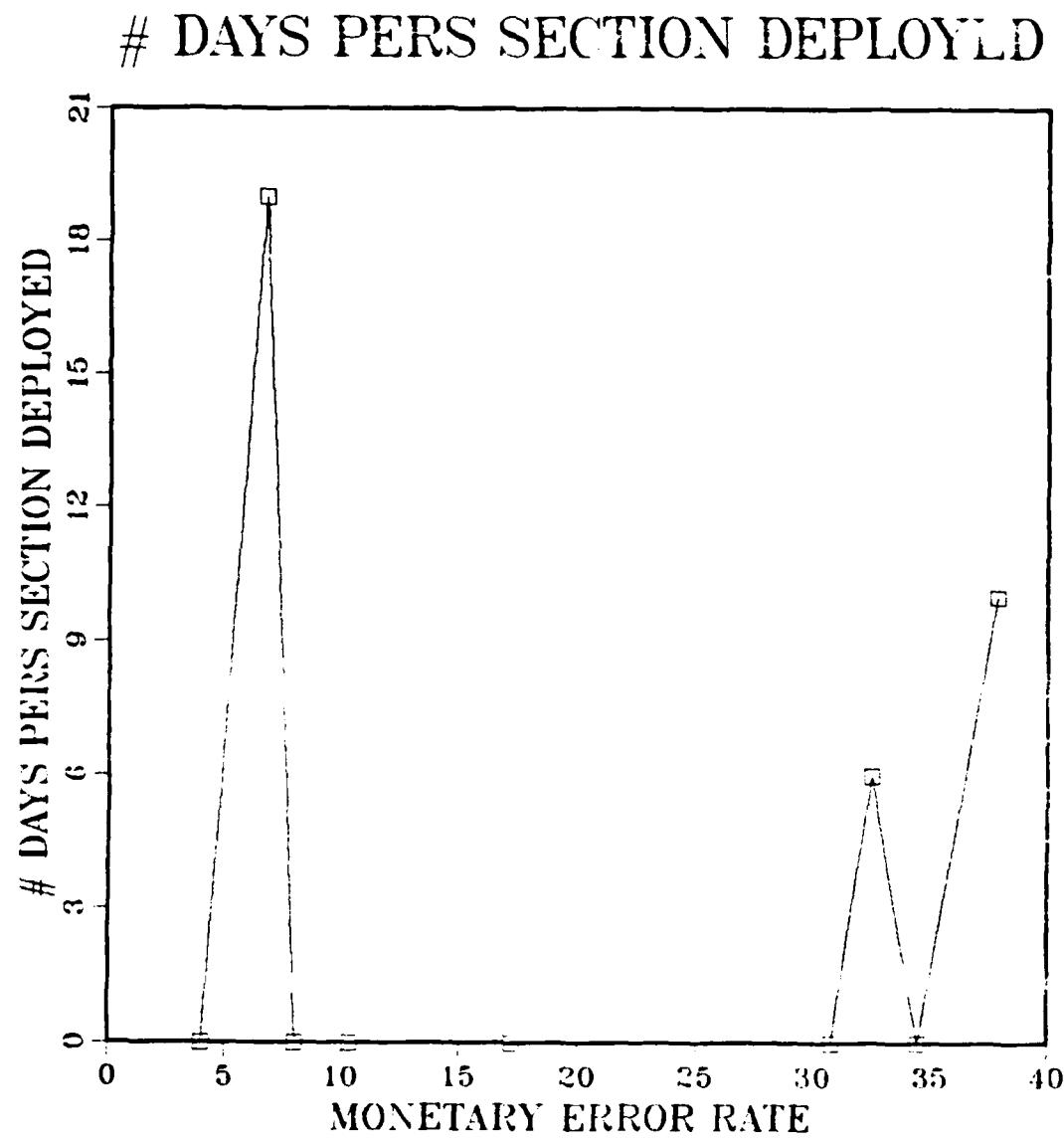


Figure 6. Monetary Error Rate in Relation to the Number of Days the Personnel Section Was Deployed.

the three highest error rates. Also, the data points show no linear or curvilinear shape. Clearly, no relationship exists.

This observed result differs from what might be expected. When the number of days the personnel section was deployed increased, it would be expected that the error rate would also increase. The graphical analysis does not support this. However, one problem is that only three of the nine battalions deployed, which offers no basis to indicate if any relationship exists between the error rate and the number of days of deployment.

#### 7. Monetary Error Rate in Relation to the Number of Additional Duties Assigned to the Personnel Officer

Figure 7 indicates that no relationship exists between error rates and the number of additional duties assigned to the personnel officer. The points on the graph show no linear or curvilinear shape. However, as the number of additional duties increase (from Battalions A through D), so do the error rates. Battalion E's personnel officer has no additional duties, yet Battalion E incurred a higher error rate than Battalions A through D. Also, Battalion G's personnel officer has no additional duties, yet the battalion's error rate is the third highest. Clearly, no relationship exists.

This observed result differs from what would be expected. As additional duties are assigned to the personnel officer, it would seem that the error rate would increase due to the personnel officer's attention being drawn away from MCDOSET oriented activity. However, as indicated by Figure 7,

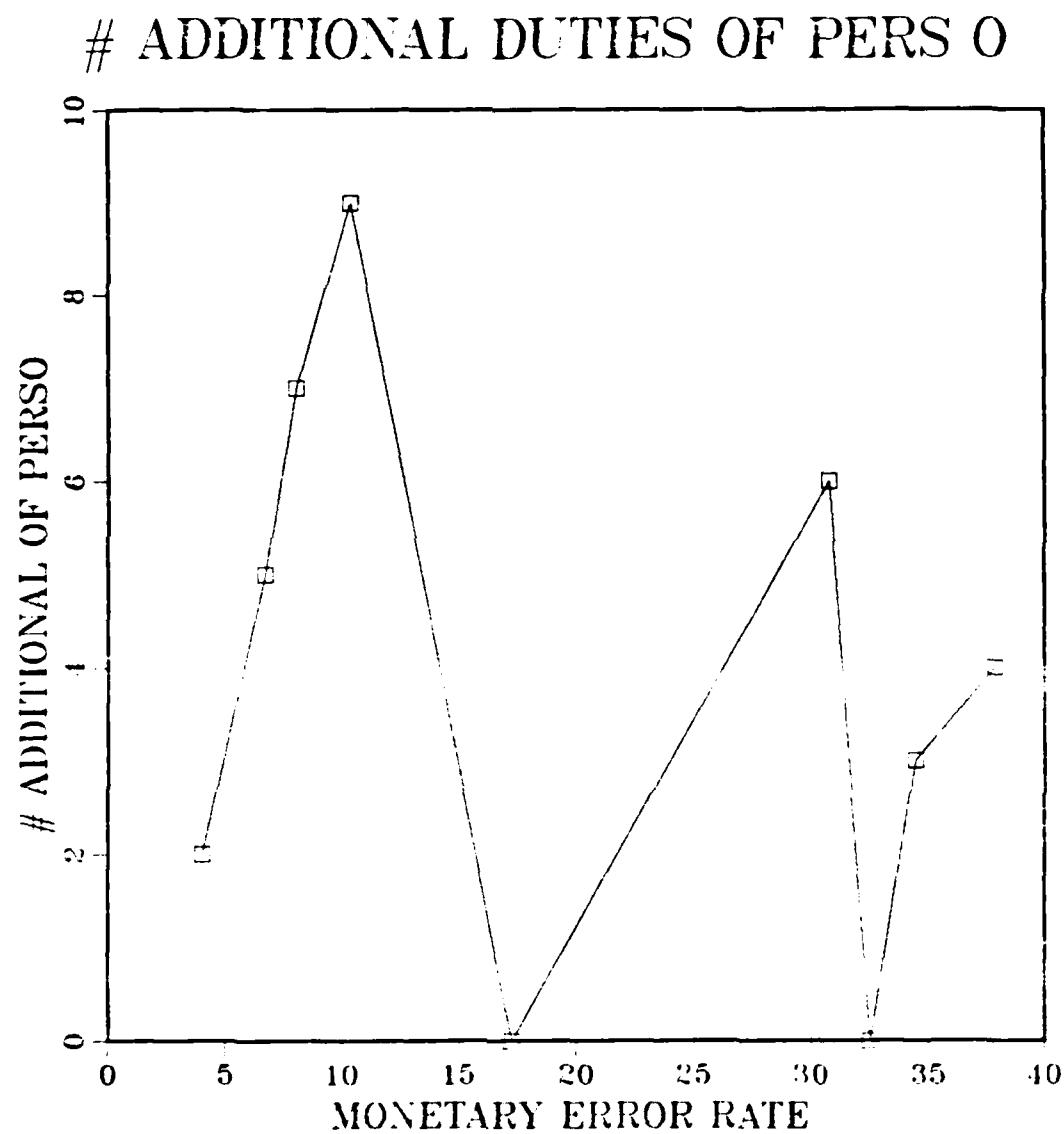


Figure 7. Monetary Error Rate in Relation to the Number of Additional Duties of the Personnel Officer.

no relationship appears to exist between error rate and the number of additional duties assigned to the personnel officer. This may be partially explained because personnel officers will not allow extra duties to interfere with their regular duties.

8. Monteary Error Rate in Relation to the Percentage of the Personnel Officer's Time Taken by Extra Duties

An analysis of Figure 8 indicates that no relationship exists between the error rate and the percentage of time taken by extra duties assigned to the personnel officer. The points on the graph show no linear or curvilinear form. Additionally, the battalions with three of the four lowest error rates (Battalions B, C, and D) have the highest percentages of their personnel officer's time taken by extra duties. Conversely, the battalions whose personnel officers had no extra duties (Battalions E and G) have error rates of 17.24 and 32.5, respectively. The remaining points on the graph representing Battalions A, F, H, and I are scattered indiscriminately.

This observed result differs from the expected result. It would be expected that as the percentages of the personnel officer's time taken by extra duties increased, so would the error rate. However, as shown, this expectation is not supported by the graphical analysis. This may be because the percent of time taken by the personnel officer's extra duties is not a factor in the error rates, i.e., the personnel officer will make time to tend to his regular duties.

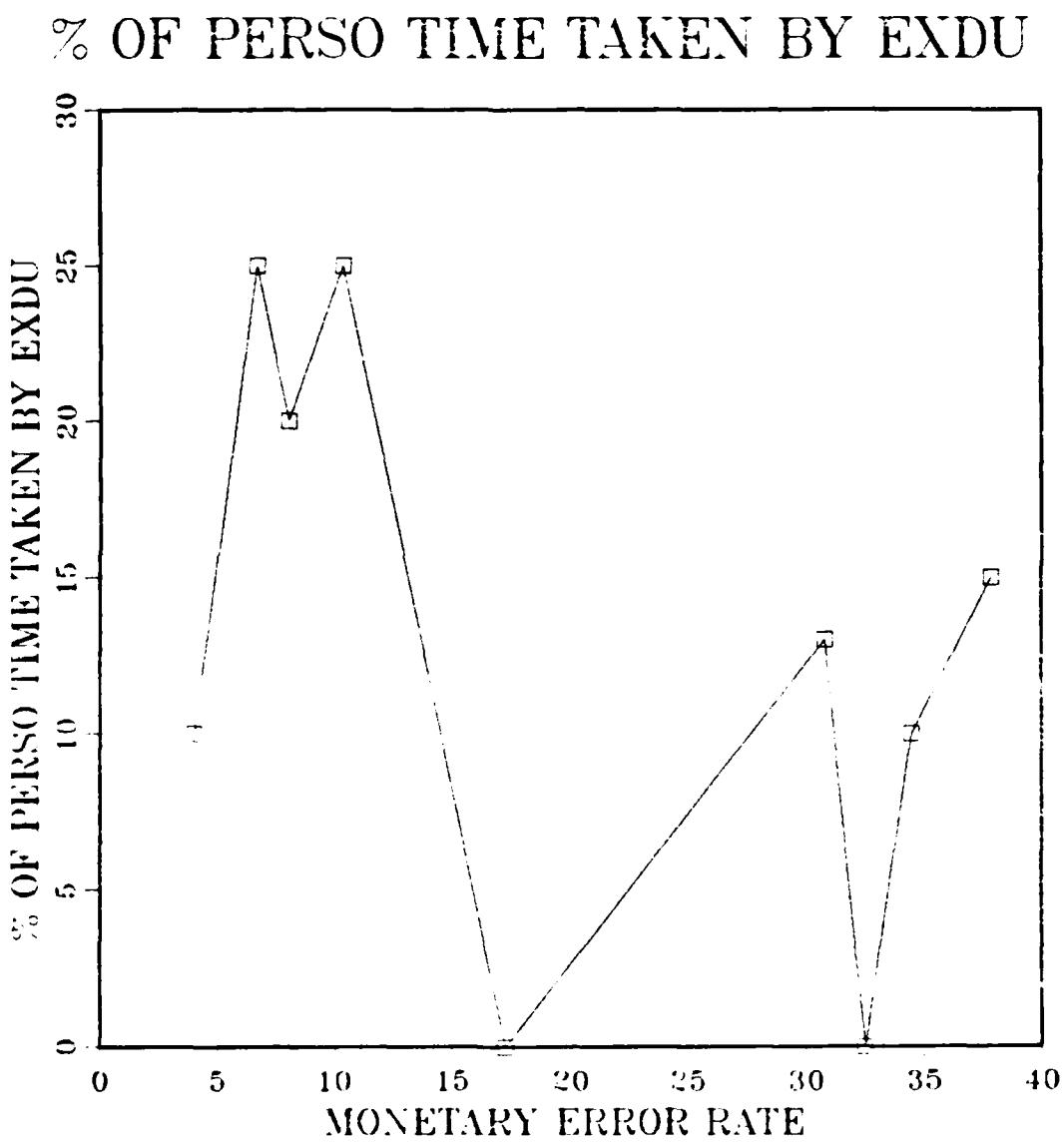


Figure 8. Monetary Error Rate in Relation to the Percentage of the Personnel Officer's Time Taken by Extra Duties.

9. Monetary Error Rate in Relation to the Number of Years the Personnel Officer Had Held That Position in the Battalion

Figure 9 shows that there is no graphical indication that the error rate is related to the number of years that the personnel officer had served in the battalion prior to the MCDOSET inspection. Again, the points on the graph show no linear or curvilinear shape. They show that no personnel officer had been in the battalion longer than three years. The officer who had been in his battalion the longest (three years) had an error rate of 34.48, while the officer who had been in his battalion the shortest period of time (.17 years) had an error rate almost as high, 32.5. Also, four of the battalions whose personnel officers had been in the battalion less than 1.5 years (Battalions A, C, D, and E) had error rates under 20 percent, whereas three battalions whose personnel officers had also been in their battalion less than 1.5 years (Battalions F, G, and I) had error rates above 30 percent. Therefore, no relationship exists between the error rate and the number of years the personnel officer had held his position in the battalion.

The observed result differs from the expected result. It would be expected that the longer the personnel officer had served in the battalion, the lower the error rate. However, the graphical analysis in Figure 9 offers no evidence that error rate is affected by the number of years the personnel officer has served in that position in the battalion. This may be partially explained

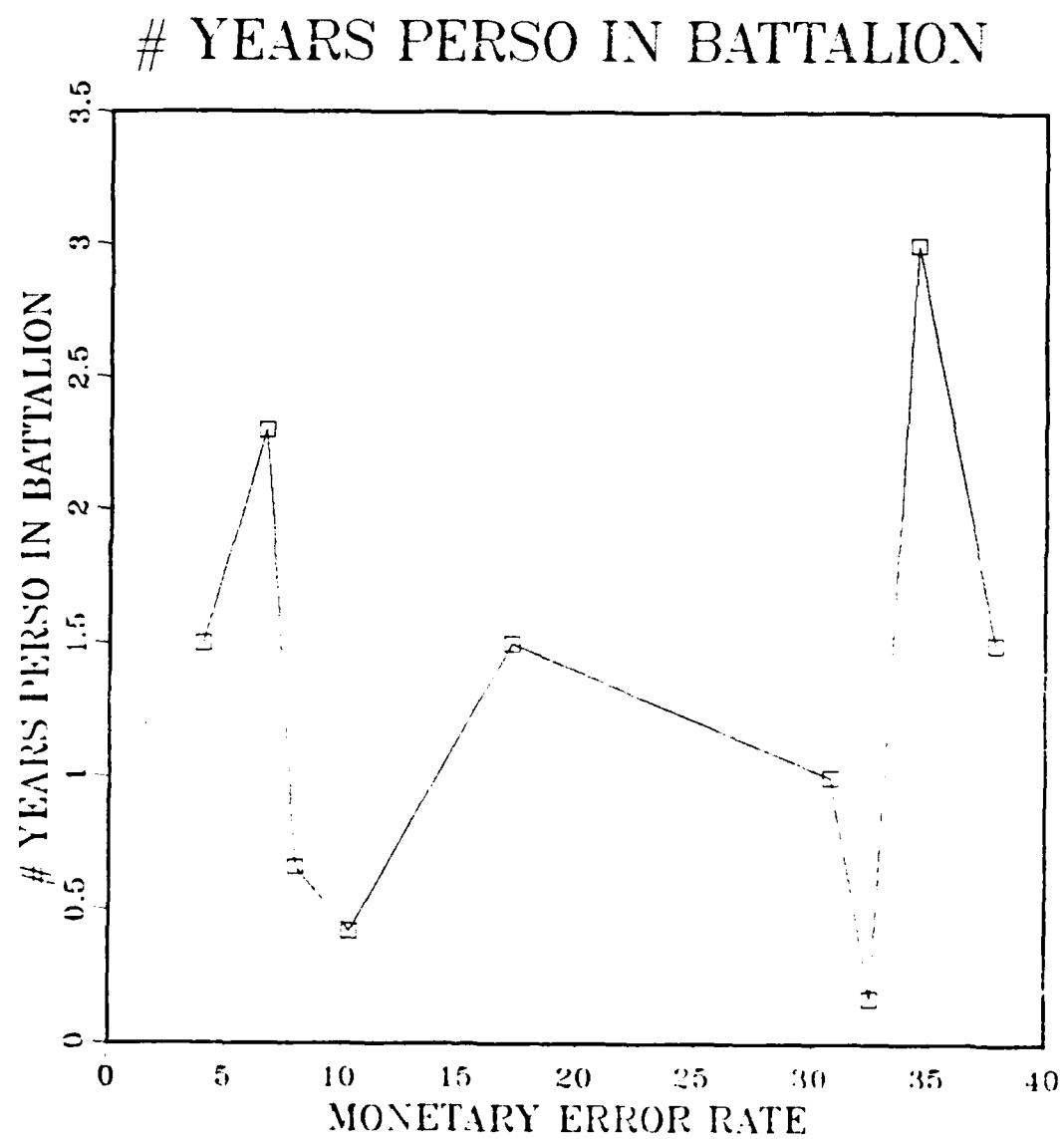


Figure 9. Monetary Error Rate in Relation to the Number of Years the Personnel Officer Has Been in the Battalion.

by other factors not measured in this study such as command support of the battalion personnel section, or the rapport between the battalion personnel section and the rest of the battalion.

10. Monetary Error Rate in Relation to the Number of Years the Personnel Chief Has Been in the Battalion

In Figure 10, it appears that there is a negative relationship between the error rate and the number of years the personnel chief has been in that position in the battalion. With the exception of just two outlier points representing Battalions B and D, the points on the graph do represent a degree of negative linearity, i.e., as the number of years decreases, the error rate increases.

The two outlier points (representing Battalions B and D) tend to discredit this relationship. However, these two outliers can be partially explained. The outlier representing Battalion B indicates that although Battalion B's personnel chief has been in the battalion just over one year, Battalion B has a low error rate. However, Battalion B has some characteristics which may account for this. First, both the personnel officer and the personnel chief have the greatest number of years of supervisory experience among the personnel officers and personnel chiefs sampled. Secondly, the personnel officer has the second highest tenure in his battalion among the battalions sampled. Finally, Battalion B has exactly the authorized T/O strength staffing its personnel office.

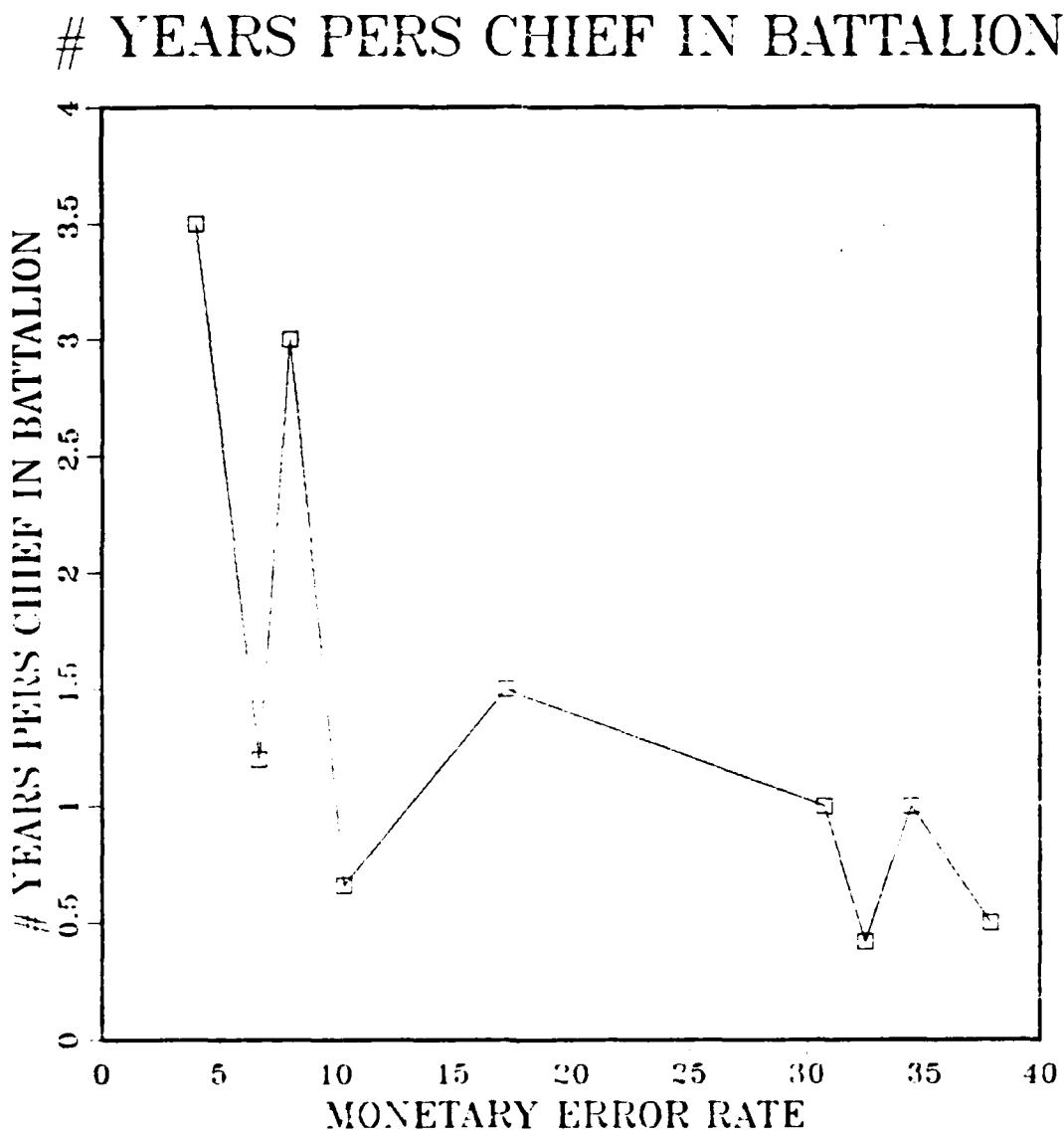


Figure 10. Monetary Error Rate in Relation to the Number of Years the Personnel Chief Has Been in the Battalion.

Similarly, the outlier representing Battalion D may be partially explained. Battalion D had exactly five personnel in their unit diary section, exactly the authorized T/O strength in this section which is the focus of the MCDOSET inspection. In this case, the expected result coincides with the observed result. One would expect that as the number of years the personnel chief was in the battalion increased, the error rate would decrease, which is supported by Figure 10.

11. Monetary Error Rate in Relation to the Number of Years of Supervisory Experience of the Personnel Chief

As indicated by Figure 11, it appears that a negative relationship exists between the error rate and the number of years of supervisory experience of the personnel chief. However, two outliers, representing Battalions A and D, tend to discredit this negative relationship. The outlier represented by Battalion A is not quite so discrediting, as it indicates that Battalion A's personnel chief has nine years of supervisory experience, and it would be expected that a battalion with a seasoned personnel chief would have a low error rate.

However, the outlier represented by Battalion D is more discrediting to the relationship, and may be partially explained by two factors. First, Battalion D had one of the lowest numbers of personnel in their personnel office, which would make the personnel section easier to manage. Secondly, although the number of personnel in the section was small, the unit diary section was fully staffed at authorized T/O strength.

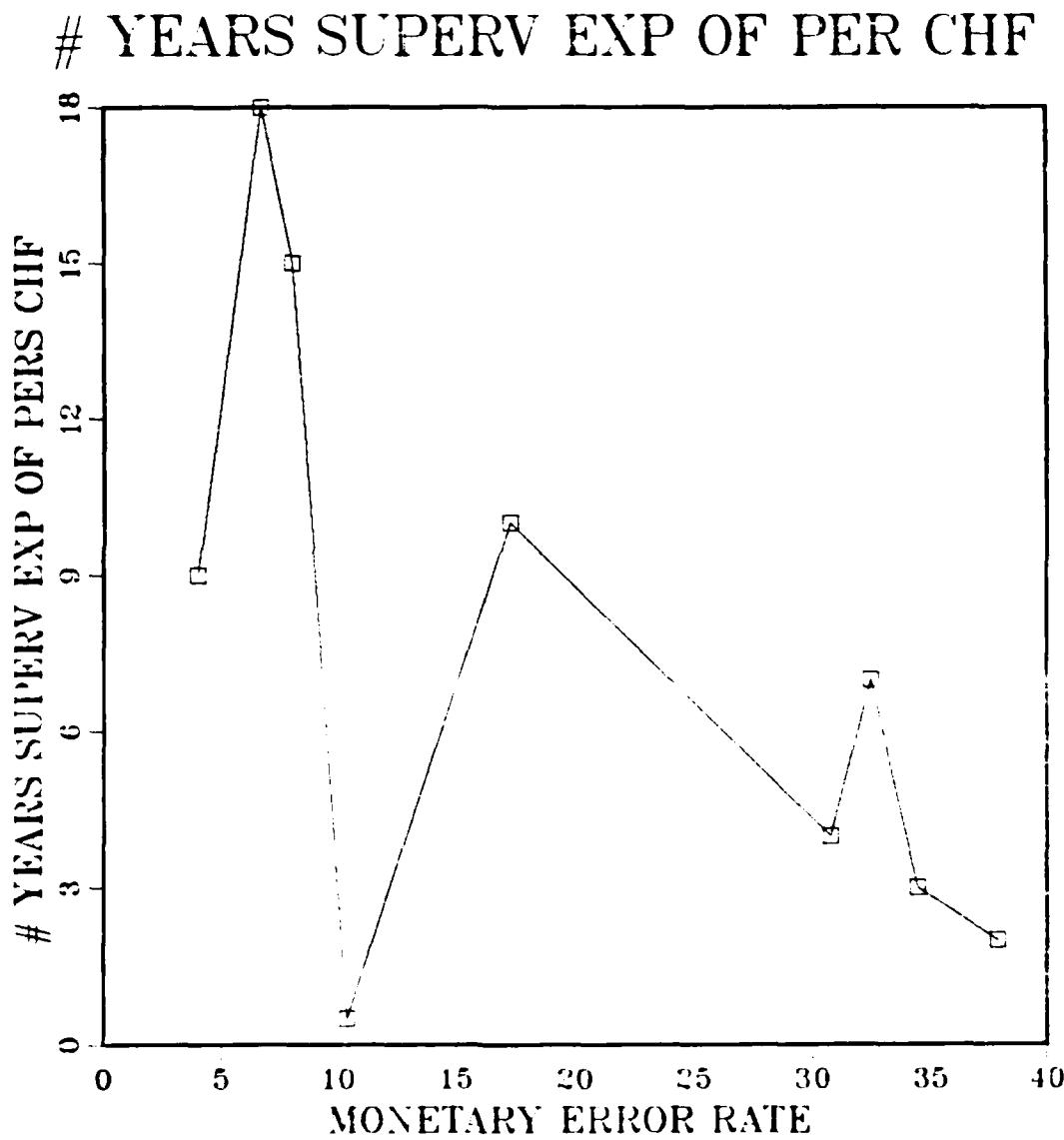


Figure 11. Monetary Error Rate in Relation to the Number of Years of Supervisory Experience of the Personnel Chief.

In this case, the observed result coincides with the expected result. As the number of years that the personnel chief was in the battalion increased, one would expect the error rate to decrease, which is exemplified by Figure 11.

12. Monetary Error Rate in Relation to the Number of MOS 0131 Personnel Turnovers

As can readily be seen by Figure 12, the number of MOS 0131 personnel turnovers did not affect the error rate of the battalions sampled. Although it should be noted that only one battalion had any turnover at all, so there really was no basis from which to arrive at a conclusion. Normally, it would be expected that as the number of personnel turnovers increased, the error rate would increase. However, Figure 12 shows no relationship between these two variables, due to the fact that only one battalion had any turnover, which offers no basis for ascertaining whether there is a relationship between error rate and the number of MOS 0131 turnovers.

13. Monetary Error Rate in Relation to the Number of Personnel in the Unit Diary Section

Figure 13 shows that no relationship exists between error rate and the number of personnel in the unit diary section. The least number of personnel in a battalion was four, and the five battalions which had four personnel had error rates which ranged from 4 to 32.5. The greatest number of personnel in a battalion was six, and that battalion had an error rate of 37.88. Finally, three battalions had five personnel, and the error rates ranged from 8 to 34.48.

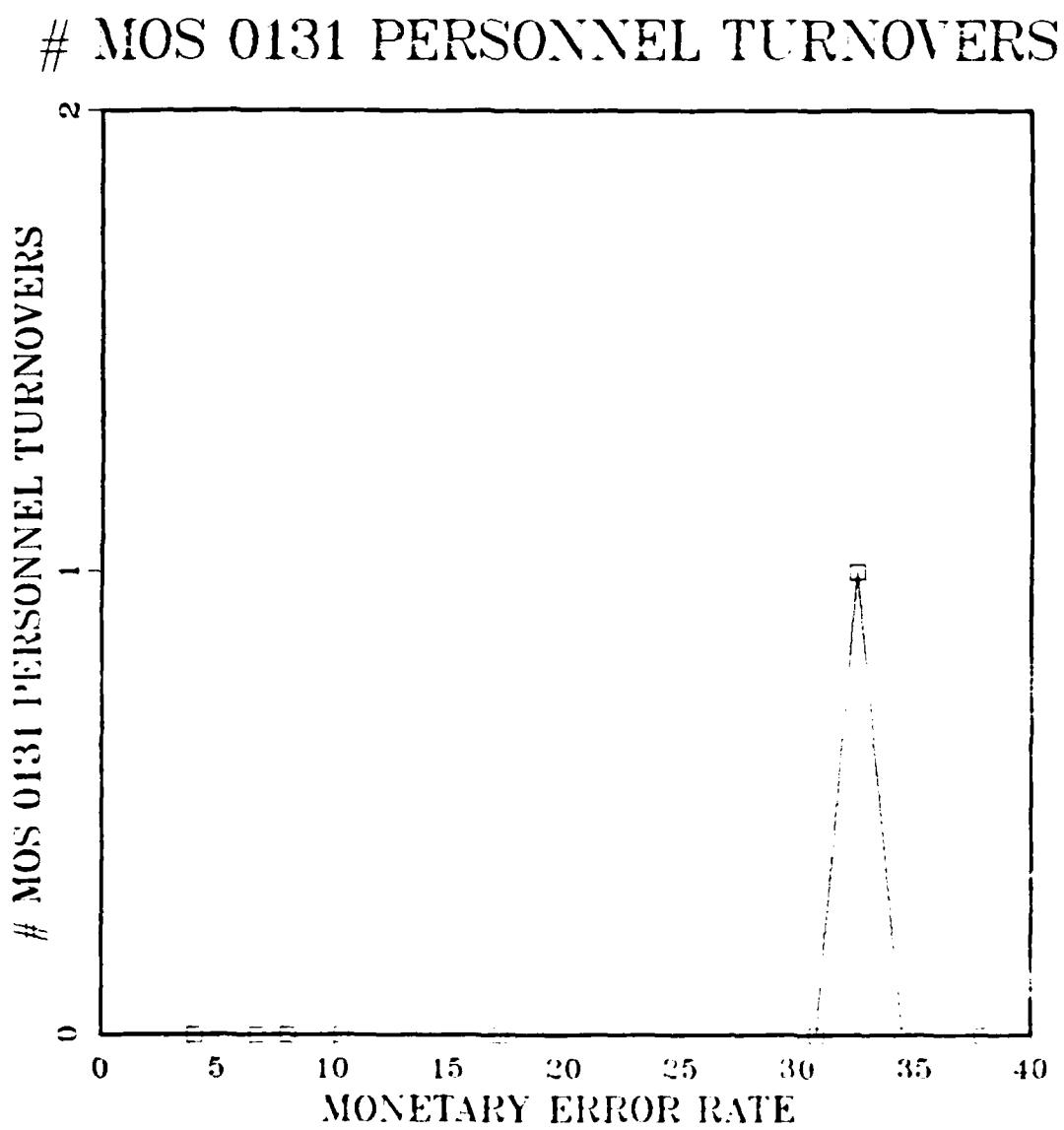


Figure 12. Monetary Error Rate in Relation to the Number of MOS 0131 Personnel Turnovers.

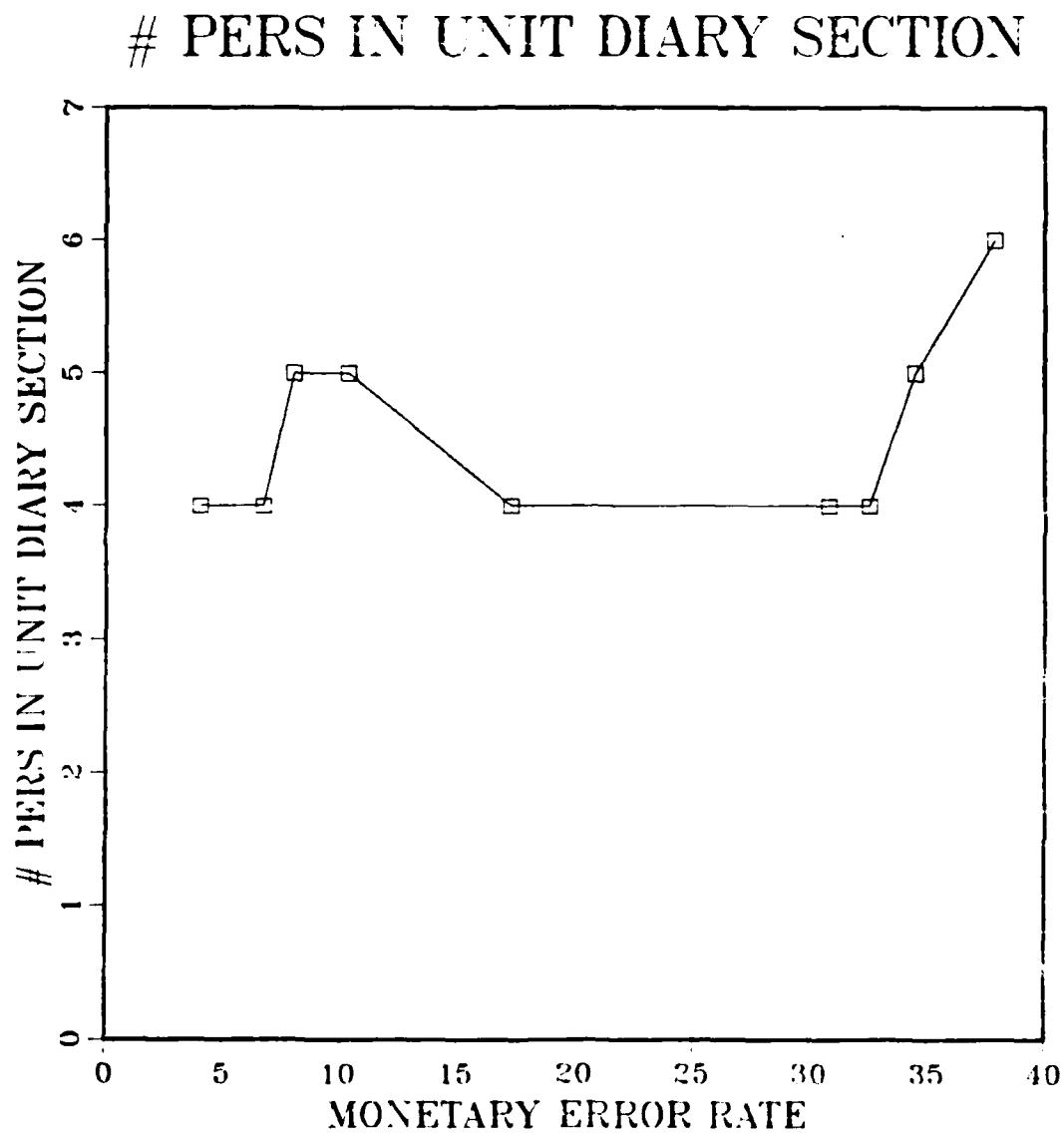


Figure 13. Monetary Error Rate in Relation to the Number of Personnel in the Unit Diary Section.

The observed result in this instance differs from the expected result. One would expect that as the number of personnel in the unit diary section increased, the error rate would decrease. However, Figure 13 does not support this, in that it appears that no relationship exists. A partial explanation for this could be that a small number of personnel in the unit diary section could be compensated for by an experienced personnel chief. This partial explanation is somewhat supported by Figures 10 and 11.

14. Monetary Error Rate in Relation to the Number of 0131 Personnel in the Unit Diary Section

As shown by Figure 14, no relationship appears to exist between the error rate and the number of school-trained MOS 0131 personnel in the unit diary section. The points on the graph show no linearity or curvilinearity. Two of the three battalions with the lowest error rates (Battalions A and C) did have the highest numbers of school-trained 0131's. However, the greatest number of school-trained 0131's in a battalion was four, while the smallest number was two--a difference of only two. Moreover, the battalion with the second highest error rate, Battalion I, had four school-trained 0131's. So, there does not seem to be any relationship between error rates and the number of school-trained 0131 personnel working in the unit diary section.

The observed result does differ from the expected result. As stated in Chapter II, the unit diary section is the focal point of the MCDOSET inspection, and one would

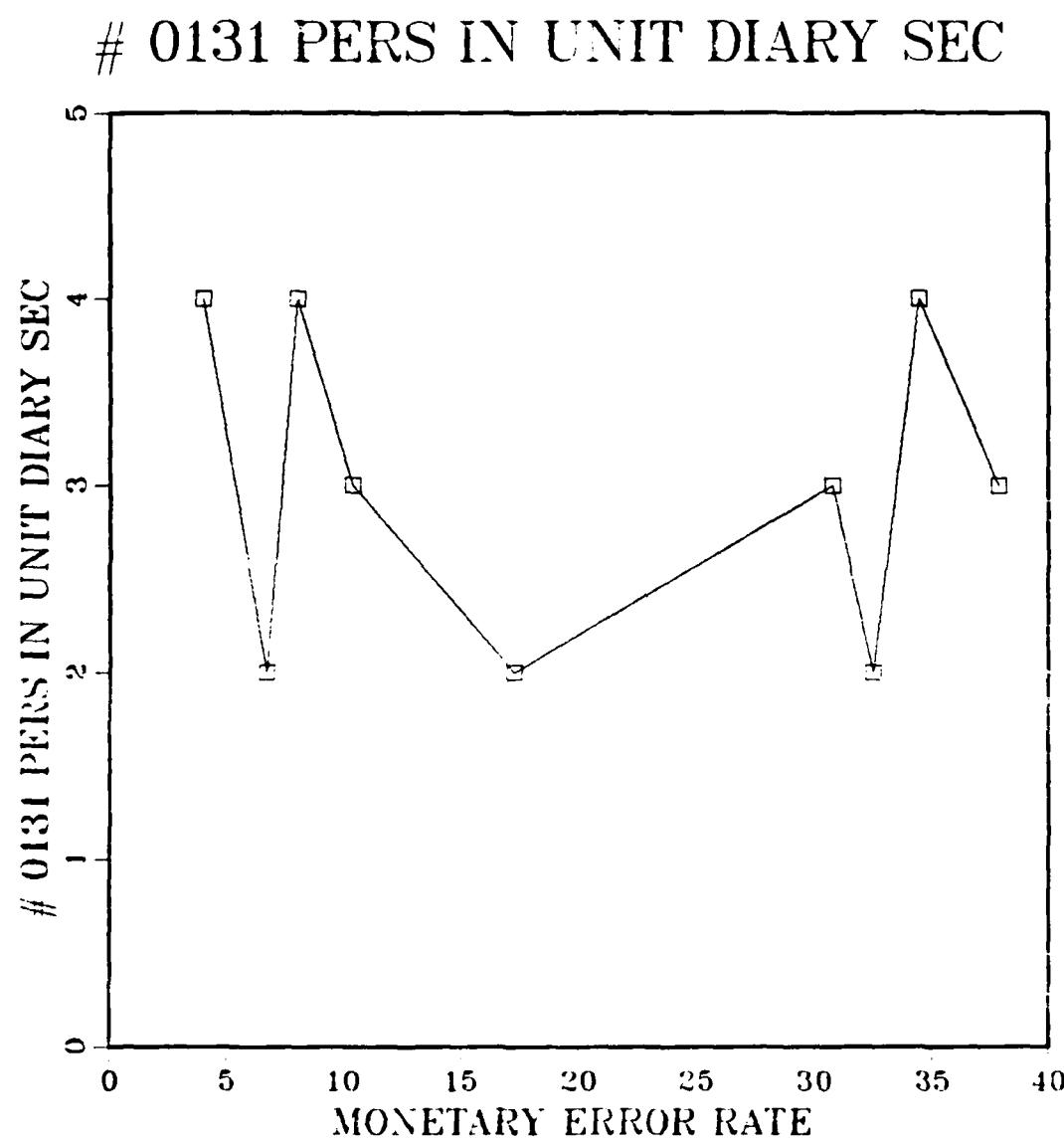


Figure 14. Monetary Error Rate in Relation to the Number of 0131 Personnel in the Unit Diary Section.

expect there to be a negative relationship between the number of school-trained 0131's and the error rate. However, as indicated by Figure 14, no such relationship appears to exist. This difference between the expected result and the observed result may be because it does not matter how many school-trained 0131's a battalion has working in their unit diary section if the personnel chief has experience and tenure, per Figures 10 and 11, and supervises the unit diary section closely.

#### D. SUMMARY

This chapter provided a graphical analysis of the data to ascertain what the contributing factors are to the MCDOSET error rates. By graphically plotting the battalion's error rates against the corresponding values of the battalion's candidate contributing factors, the resulting shape of the graph would provide insight as to the relationship between error rates and that specific category of candidate contributing factor. The results of the graphical analysis were provided in Figures 1 through 14. An analysis and interpretation of these Figures revealed three candidate contributing factors which do have an impact on the error rates: (1) the total number of personnel working in the battalion personnel office, (2) the number of years the personnel chief has been in that position in the battalion, and (3) the number of years of supervisory experience of the personnel chief.

Additionally, the interpretation of Figures 1 through 14 indicated that in virtually all cases, the expected result that a prospective contributing factor would have on the error rate did not coincide with the graphically observed result. A summary of the expected result of a candidate contributing factor on the error rate versus the graphically observed result is provided in Table I.

In Table I, the expected result and observed result are indicated either by a +, -, or 0. A + indicates a positive relationship, i.e., the candidate contributing factor would increase as error rate increased. A - indicates a negative relationship, i.e., the candidate contributing factor would decrease as error rate increased. A 0 indicates no relationship, i.e., the candidate contributing factor would neither increase nor decrease as the error rate increased.

TABLE I  
EXPECTED RESULT VS OBSERVED RESULT OF  
PROSPECTIVE CONTRIBUTING FACTORS ON THE ERROR RATES

Error Rate in Relation to	Expected Result	Observed Result
Total Number Marines in Personnel Office	-	+
Total School-trained Personnel	-	0
E5 and Below 0121's	-	0
E6 and E7 0193's	-	0
Years of Experience of Personnel Officer	-	0
Number Days Personnel Section Deployed	+	0
Number Additional Duties of Personnel Officer	+	0
Percent of Personnel Officer's Time taken by Extra Duties	+	0
Number Years Personnel Officer in Battalion	-	0
Number Years Personnel Chief in Battalion	-	-
Number Years Supervisory Experience of Personnel Chief	-	-
Number MOS 0131 Turnovers	+	0
Number Personnel in Unit Diary Section	-	0
Number 0131 Personnel in Unit Diary Section	-	0

## V. CONCLUSIONS AND RECOMMENDATIONS

### A. GENERAL

This chapter will offer the conclusions as to what the primary contributing factors to the MCDOSET error rates are, and make recommendations as to how the MCDOSET error rates can be reduced once the primary contributing factors are known. The conclusions will be based upon the graphical analysis of the data presented in Chapter IV.

Additionally, by graphing linear composite values of each battalion's primary contributing factors against the respective error rates, the validity of the conclusions will be examined. Finally, a summary of this thesis and recommendations for further study will be provided.

### B. CONCLUSIONS

Analysis of the data presented in CHAPTER IV in Figures one through 14 indicates that, based upon the sample used in this study, there are three primary contributing factors to the error rates, i.e., the error rates are affected by three conditions which exist within the battalions: (1) The total number of personnel working in the battalion's personnel section; (2) the number of years the personnel chief has been the personnel chief of the battalion, i.e., the personnel chief's tenure; and, (3) the number of years of supervisory experience of the personnel chief.

1. The Total Number of Personnel Working  
in the Battalion's Personnel Section

Figure 1 indicates a positive relationship between the error rate and the total number of Marines working in the personnel section. The error rate increases as the total number of personnel in the personnel section increases. Although initially it would be expected that this relationship would be negative, with the close supervision required to implement the myriad of applicable administrative directives, it could also be expected that effective supervision could break down as the total number of Marines in the personnel office increased. This is particularly so since there is only one supervisor in the battalion tasked to supervise in detail, and that is the personnel chief.

2. The Number of Years the Personnel Chief  
Has Been in the Battalion

Per Figure 10, the tenure in the battalion of the personnel chief affects the MCDOSET error rates, and the relationship between error rate and the tenure of the personnel chief is negative. The error rate increases as the tenure of the personnel chief decreases. This seems feasible in that the longer the personnel chief had to implement his systems, the lower the error rate might be. This is further substantiated by the fact that the lowest MCDOSET error rates in the Marine Corps occur within the First Marine Brigade, where the majority of personnel stay in the same unit for a minimum of three years [Ref. 2].

3. The Number of Years of Supervisory Experience of the Personnel Chief

As indicated by Figure 11, error rate is affected by the number of years of supervisory experience of the personnel chief. The greater the number of years of supervisory experience, the less the error rate--a negative relationship. The points on the graph form a fairly straight negatively sloped line, with the exception of the outlier point representing Battalion D. The negative relationship indicated here seems feasible in that a more experienced personnel chief would be expected to help produce lower MCDOSET error rates than personnel chiefs with little supervisory experience.

4. The Validity of the Conclusions: A Graphical Examination

With three primary contributing factors to the error rates having been identified, the validity of the conclusions can be examined graphically. This is accomplished through a graphic examination of a linear composite of the three primary contributing factors of each battalion graphed against the battalion's corresponding error rate. The graph depicting this examination would have the values of each battalion's error rate represented on the Y-axis. The values on the X-axis would represent the value of each battalion's linear composite of the three primary contributing factors. The linear composite value represents the relative presence of a combination of the three primary contributing factors of

the battalion for which it is computed. The computation and interpretation of the linear composite value is explained in detail below.

a. Computation and Interpretation of the Linear Composite Value

The value of the linear composite for each battalion is a sum of three ratios, with each ratio representing one of the three primary contributing factors. The denominator of each ratio is the maximum value observed from among the nine infantry battalions sampled for that specific primary contributing factor; however, the numerator represents the number in that battalion for that specific primary contributing factor. For example, from observing the data, the maximum number of personnel in the personnel office of the battalions sampled was 22. The number of personnel in Battalion A's personnel office was 11. Therefore, the ratio representing this primary contributing factor for Battalion A is  $11 \div 22$ . Similarly, the ratios for each of the other two remaining primary contributing factors would be computed for Battalion A.

Then, the three ratios would be summed, and this value represents Battalion A's linear composite. The linear composite would then be computed for Battalions B through I. It should be noted that when the ratios are summed, the ratio representing the total number of personnel in the personnel office has a positive sign (+) because of the

positive relationship between error rate and the total number of personnel in the personnel office, as illustrated by Figure 1. However, the ratios representing the number of years the personnel chief had been in the battalion, and the number of years of experience of the personnel chief, would have a negative sign (-). This is because of the negative relationship between error rate and these two primary contributing factors, as illustrated by Figures 10 and 11. The values of each battalion's linear composite are provided in Table II.

Because of the positive sign assigned to the ratio representing the total number of personnel in the personnel office, and the negative signs assigned to the ratios representing the number of years the personnel chief had been in the battalion, and the personnel chief's tenure, some statements can be made about the value representing the linear composite.

If a battalion has a linear composite value less than zero, this means that the battalion tends to have a more experienced and tenured personnel chief, and fewer personnel in their personnel section. The smaller the value of the linear composite, the more experience and tenure the battalion's personnel chief has, with less personnel in the personnel office. Similarly, if a battalion has a linear composite value greater than zero, this indicates that the battalion has a less experienced and less tenured personnel chief, but more personnel in their personnel office. The greater the value of the

TABLE II  
BATTALION LINEAR COMPOSITE VALUES

BN	<u>Total Pers</u> 22	# Yrs Pers Chf in BN		# Yrs Super Exp of Pers Chf 18		= Value of Linear Composite
		3.5			18	
A	$\frac{11}{22}$	-	$\frac{3.5}{3.5}$	-	$\frac{9}{18}$	= - 1.
B	$\frac{15}{22}$	-	$\frac{1.2}{3.5}$	-	$\frac{18}{18}$	= - .66
C	$\frac{14}{22}$	-	$\frac{3.00}{3.5}$	-	$\frac{15}{18}$	= - 1.05
D	$\frac{17}{22}$	-	$\frac{.66}{3.5}$	-	$\frac{.5}{18}$	= .55
E	$\frac{11}{22}$	-	$\frac{1.5}{3.5}$	-	$\frac{10}{18}$	= - .48
F	$\frac{12}{22}$	-	$\frac{1.00}{3.5}$	-	$\frac{4}{18}$	= .04
G	$\frac{16}{22}$	-	$\frac{.42}{3.5}$	-	$\frac{7}{18}$	= .22
H	$\frac{18}{22}$	-	$\frac{1.00}{3.5}$	-	$\frac{3}{18}$	= .37
I	$\frac{22}{22}$	-	$\frac{.5}{3.5}$	-	$\frac{2}{18}$	= .75

Note that the values in the denominator in each column are the same, and represent the maximum observed value among the sample battalions for that particular category of contributing factor.

linear composite, the greater the number of personnel working in the personnel section, and the less are the tenure and experience of the personnel chief.

b. The Graphic Examination of the Validity of the Conclusions

The graph depicting the battalion's linear composite values versus the corresponding error rates is depicted in Figure 15. Note that the points on the graph represent Battalions A through I in a different sequence than occurred in Figures 1 through 14; hence, the points on the graph have been labeled A to I, accordingly. The points indicate a good linear form which shows that the smaller the composite value, the higher the error rate. Based upon the interpretation of the linear composite values provided in subparagraph 4a above, this means that those battalions whose personnel chiefs were experienced and tenured, and who had less personnel in their personnel office had a lower error rate than those battalions whose personnel chiefs were not as experienced nor tenured, and had larger numbers of personnel working in their personnel office.

This supports the conclusions of this research as stated in paragraph B, that the primary contributing factors to the error rates are the total number of personnel in the personnel office, the number of years of supervisory experience of the personnel chief, and the tenure of the personnel chief, and that the relationship of each of these

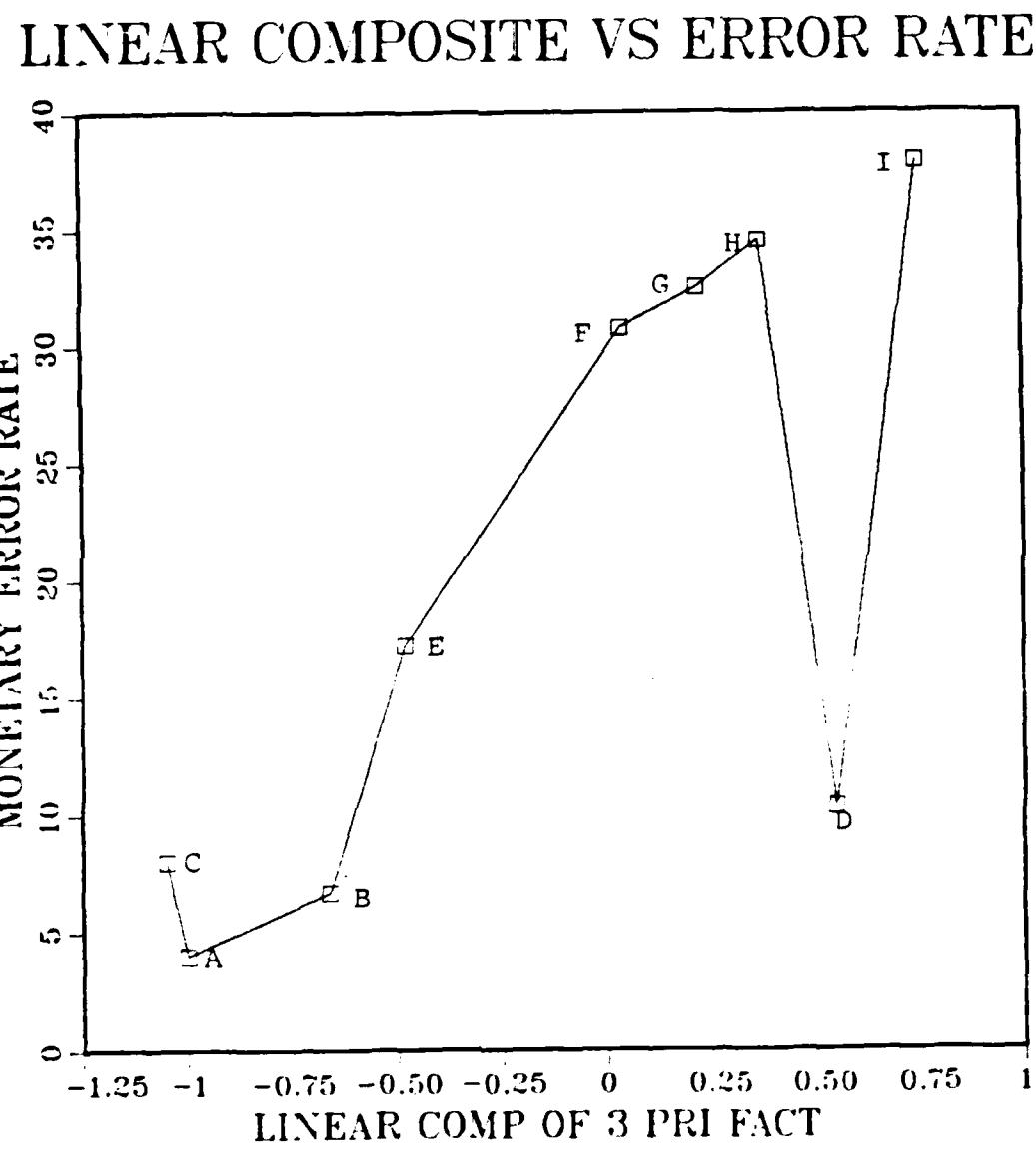


Figure 15. The Linear Composite Value Versus the Error Rate.

three factors to the error rate is positive, negative and negative, respectively.

The major discrediting element to the conclusions of this thesis as presented in Figure 15 is the outlier, which represents Battalion D. This battalion had a personnel chief with little experience and tenure, a high number of personnel in the personnel office, yet they had a low error rate (10.34). This can be partially explained by the fact that Battalion D's personnel officer stresses the proper training of his administrative personnel--a trait not stressed by the personnel officers of the other battalions in the comments section of the questionnaire. Additionally, attempts were made to contact the personnel officer of Battalion D to further explain Battalion D's low error rate in lieu of the fact that Battalion D had a large number of personnel in the personnel office, and a personnel chief with minimal experience and tenure. However, Battalion D was deployed for an extended period.

#### C. RECOMMENDATIONS

Based upon the results of this study, the following recommendations are made to reduce the MCDOSET error rates in the Marine Corps Infantry Battalion.

##### 1. Reducing the Error Rate by Monitoring the Total Number of Personnel in the Personnel Office

The error rate could be reduced by monitoring the number of personnel who work in the battalion personnel office and ensuring that this number stays within the limits

prescribed by the T/O. Keeping the number within the limits prescribed frees the office supervisors, i.e., the personnel chief and the personnel officer, to supervise more closely, thereby producing better results. The greater the number of personnel in the personnel office, particularly when this number exceeds the authorized T/O strength, the more difficult is the span of control and office coordination for the office supervisors.

2. Reducing the Error Rate by Placing the More Experienced Personnel Chiefs in the Battalions With the Highest Error Rate

Error rates could be reduced by placing the more experienced personnel chiefs in the battalions with the highest error rates. This would place the expertise and experience where problems exist, thereby taking full advantage of the years of experience of the more experienced personnel chiefs, and thus reducing the error rates.

3. Reducing the Error Rates by Allowing the Personnel Chiefs to Establish Tenure in Their Battalions

Finally, the error rates could be reduced by allowing personnel chiefs to establish tenure in their battalions. Although this recommendation tends to conflict with the recommendation of paragraph 2 above, it could be implemented in lieu of, or in support of, recommendation 2 above. Although it would seem more desirable to have the most experienced personnel chiefs in the battalions with the highest error rates, once they are performing their duties

in the weaker battalions, let them stay there to establish their systems to get the personnel office operating efficiently and effectively. Consequently, the results will be lower error rates during the MCDOSET inspections.

D. THESIS SUMMARY AND RECOMMENDATIONS FOR FURTHER STUDY

The purpose of this study was to: (1) Identify the MCDOSET error rates and the corresponding dollar values of the MCDOSET error rates for the Marine Corps Infantry Battalion for FY 1985; (2) Identify the primary contributing factors to error rates; and (3) Ascertain whether error rates can be reduced by making adjustments in the contributing factors. The MCDOSET error rates and the corresponding dollar values of the error rates for the battalions sampled were provided in Appendix A.

From an analysis of data provided in Chapter IV, it was determined that the primary contributing factors to the error rates are the total number of Marines performing their duties in the battalion personnel office, the number of years of supervisory experience of the personnel chief, and the number of years that the personnel chief had held that position in the battalion. This study indicates that by controlling contributing factors, error rates can be reduced by keeping the personnel office staff at about the authorized T/O strength; placing the more experienced personnel chiefs in battalions with the highest error rates; and allowing personnel chiefs to establish tenure in their battalions.

However, it is recognized that because rigorous statistical techniques were not used, and because the graphical analysis was descriptive, the tentative conclusions and recommendations relied upon a degree of speculation. In short, the methodology did not allow for airtight conclusions to be drawn nor solid recommendations to be made.

However, this research did provide an understanding of error rates, and shed some light on factors contributing to error rates. It also recognized the complexity of the relationship between the number of personnel working in the personnel office, the experience of the supervisors, and the tenure of the supervisor in the Marine Infantry Battalion. It would be expected that error rates would decrease as the experience and tenure of the personnel chief increased; however, one would not expect the error rates to increase as the total number of personnel working in the personnel office increased--as this study showed. When the MCDOSET West Coast was informally queried by this researcher, they stated that they felt that the high error rates were directly attributable to the fact that the battalions did not have enough personnel to staff the personnel office, which is contrary to the conclusions of this study.

Several avenues for further study may be pursued. First, an analysis could be made of the contributing factors to the monetary values of the error rates (vice just the error rates as was the focus of this study).

Secondly, the effect of a concentrated effort to train the administrative personnel of the battalions could be made to ascertain if that would have any effect on the error rates. (The personnel officer of the battalion which had the lowest error rate, Battalion A, attributed his success to the training his clerks received from the MCDOSET West Coast.)

Finally, this study focused on contributing factors which were quantifiable; there could be further research on contributing factors to error rates (or monetary values of the error rates) which are not quantifiable. These prospective contributing factors would include such conditions as the morale of the personnel in the personnel office, the relationship of the battalion personnel office with the companies of the battalion, or the job satisfaction experienced by the personnel working in the battalion personnel office. In short, this would be a study of excellence: What makes a good personnel office good, and a bad personnel office bad?

APPENDIX A

FISCAL YEAR 1985 MCDOSET ERROR RATES  
FOR THE MARINE CORPS  
INFANTRY BATTALIONS SAMPLED

Battalion	Monetary Error Rate (%)	Monetary Value (\$)
A	4.00	90.00
B	6.67	4.00
C	8.00	533.00
D	10.34	205.00
E	17.24	3,297.00
F	30.77	1,385.00
G	32.50	2,235.00
H	34.48	6,376.00
I	37.88	883.00
Total		15,008.00

## APPENDIX B

### DIRECTIVES WHICH GOVERN THE BATTALION PERSONNEL OFFICE

#### ASSIGNMENT, CLASSIFICATION AND TRAVEL SYSTEMS MANUAL (ACTS) -- MCO P1000.6

The manual contains the instructions, procedures and regulations for:

- General Policy for classification, distribution, assignment and transfer of officers and enlisted personnel.
- Classification, assignment, and distribution of officers.
- Classification, assignment, distribution, and transfer of enlisted personnel.
- Travel of Marine Corps personnel and dependents.
- Classification and testing, officers and enlisted personnel.

#### MARINE CORPS UNIFORM REGULATIONS--MCO P1020.34

To promulgate current policies regarding the wearing of Marine Corps clothing.

#### CAREER PLANNING AND DEVELOPMENT GUIDE--MCO P1040.31

To promulgate the subject guide for use in the conduct of the Marine Corps Career Planning Program.

#### REGULATIONS FOR LEAVE, LIBERTY, AND ADMINISTRATIVE ABSENCE-- MCO P1050.3

To update regulations and policies on leave, liberty, and administrative absence.

#### MARINE CORPS INDIVIDUAL RECORDS ADMINISTRATION MANUAL (IRAM) --MCO P1070.12

The Individual Records Administration Manual has as its purpose the promulgation of policies, procedures, and technical instructions for the administration of personnel records.

JOINT UNIFORM MILITARY PAY SYSTEM/MANPOWER MANAGEMENT SYSTEM  
CODES MANUAL (JUMPS/MMSCODESMAN)--MCO P1080.20

This manual contains information used in connection with personnel reporting matters in the Joint Uniform Military Pay System/Manpower Management System (JUMPS/MMS).

PERSONNEL REPORTING INSTRUCTIONS MANUAL (PRIM)--MCO P1080.35

This manual promulgates certain policies, procedures, and technical instructions regarding automated manpower systems and subsystems. Also provides instructions for reporting information into and verifying information maintained in those systems and subsystems.

MILITARY OCCUPATIONAL SPECIALTIES MANUAL (MOS MANUAL)--MCO  
P1200.7

The purpose of this manual is to present the job structure and career development structure that will enable the Marine Corps to carry out its assigned mission.

MARINE CORPS PROMOTION MANUAL (MARCORPROMMAN)--MCO P1400.29

Promulgates the basic instructions related to the administration of officers and enlisted promotions in the Marine Corps.

MARINE CORPS FORMAL SCHOOLS CATALOG--MCO P1500.12

To promulgate instructions and information pertaining to the formal schools program.

PERFORMANCE EVALUATION SYSTEM--MCO P1610.7

Guidance for the administration and operation of the performance evaluation system for Marine Corps officers and noncommissioned officers for Navy personnel assigned to Marine Corps commands.

UNIFORMED SERVICES IDENTIFICATION AND PRIVILEGE CARD  
(DD FORM 1173)--MCO 1750.6

To promulgate regulations and policies for the application, verification, and issuance of the Uniformed Services Identification and Privilege Card, DD Form 1173.

MARINE CORPS SEPARATION AND RETIREMENT MANUAL (MARCORSEPMAN)--  
MCO P1900.16

Establishes regulations and policies on separations and retirements.

MARINE CORPS CASUALTY PROCEDURES MANUAL (MARCORCASPROCMAN) --  
MCO P3040.4

The Marine Corps Casualty Procedures Manual is issued for the guidance and compliance of all personnel responsible for Marine Corps casualty reporting, notification assistance, and casualty followup matters.

THE PRIVACY ACT OF 1974--MCO P5211.2

To outline the policies and procedures governing the collection, safeguarding, maintenance, public notice, use, access, amendment, and dissemination of personal information in systems of records maintained by the Marine Corps.

THE MARINE CORPS DIRECTIVES SYSTEM--MCO P5215.1

To publish the policies and standards for the operation and maintenance of the Marine Corps Directives System.

AUTOMATED DATA PROCESSING EQUIPMENT FOR FLEET MARINE FORCE (ADPE-FMF) IMPLEMENTATION AND MANAGEMENT PLAN (I&MP) --MCO P5230.10

To publish policy and guidance to the Fleet Marine Force commands for implementation and management of the ADPE-FMF Program within the Marine Corps.

LIST OF MARINE CORPS ACTIVITIES--MCO P5400.6

To publish the list of Marine Corps activities.

MARINE CORPS PUBLICATIONS AND PRINTING REGULATIONS--MCO P5600.31

To update policy, regulations, responsibilities, and guidance governing printing and publications.

MARINE CORPS MANUAL FOR LEGAL ADMINISTRATION (LEGADMINMAN) -- MCO P5800.8

To promulgate policies, procedures, guidance, and instructions for administrative actions in implementation of the Uniform Code of Military Justice, the Manual for Courts-Martial, 1969 (revised edition), and the Manual of the Judge advocate General.

JOINT UNIFORM MILITARY PAY SYSTEM FIELD PROCEDURES MANUAL (JFPM II) --MCO P7220.37, and,

JOINT UNIFORM MILITARY PAY SYSTEM FIELD PROCEDURES MANUAL  
(JFPM II)--MCO P7220.37

These manuals promulgate field procedures for the operations and maintenance of the Joint Uniform Military Pay System (JUMPS).

INDIVIDUAL CLOTHING REGULATIONS--MCO P10120.28

Provides current instructions and guidance concerning the administration of individual uniform clothing.

NAVY AND MARINE CORPS AWARDS MANUAL--SECNAVINST 1650.1

To promulgate information and regulations concerning current awards available to individuals and units in the naval service.

DEPARTMENT OF THE NAVY CORRESPONDENCE MANUAL--SECNAVINST 5216.1

To prescribe policies, procedures, and guidance for the preparation of correspondence.

NAVY TELECOMMUNICATIONS USERS MANUAL--NTP 3

Establishes the current message preparation procedures for both military and commercial addressees.

COMMAND AND STAFF ACTIONS--FMFM 3-1

Sets forth doctrine, procedures, and techniques for the execution of command and staff action within the Marine Corps.

DEPARTMENT OF DEFENSE MILITARY PAY AND ALLOWANCES ENTITLEMENT MANUAL--DODPM

This manual provides statutory provisions for entitlements, deductions, and collections, and establishes Department of Defense policy on the pay and allowance of military personnel.

JOINT TRAVEL REGULATIONS, VOLUME I

Contains basic statutory regulations concerning travel and transportation allowances of members of the Uniformed Services, including all Regular and Reserve components thereof.

MANUAL FOR COURTS-MARTIAL, UNITED STATES, 1969 (REVISED EDITION)

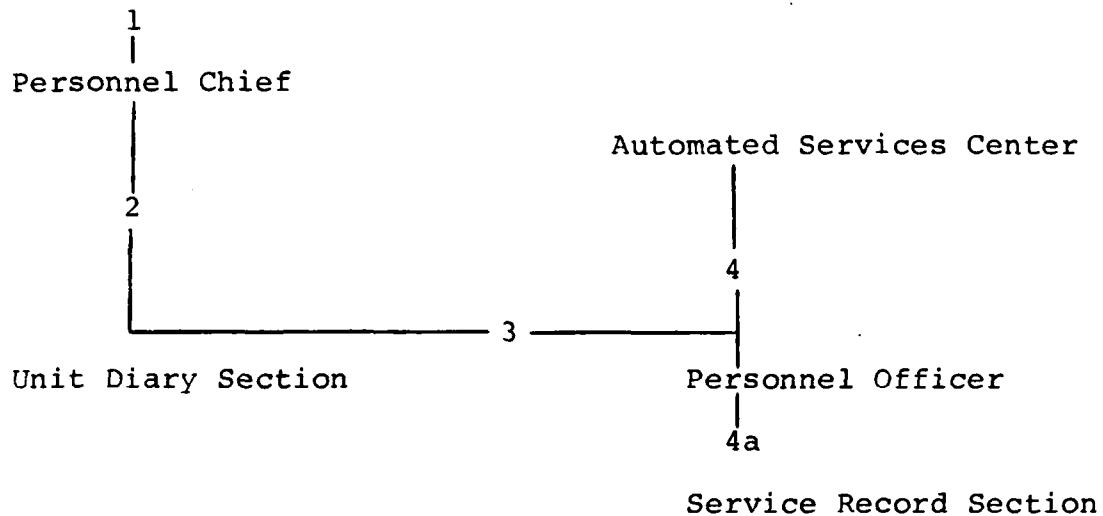
To promulgate regulations and procedures for courts-martial in the military services.

MANUAL OF THE JUDGE ADVOCATE GENERAL (JAGMAN) -- JAGINST 5800.7

To promulgate the Manual of the Judge Advocate General.

## APPENDIX C

### DOCUMENT FLOW WITHIN THE BATTALION PERSONNEL OFFICE



#### Explanation of the Document Flow

1. All incoming documents first go to the personnel chief. "Document" refers to any document (correspondence, etc.) which is the authority for an input into JUMPS/MMS.
2. The personnel chief forwards these documents to the unit diary section. The applicable data is entered into the database.
3. The unit diary and the supporting documents are forwarded to the personnel officer for verification. The personnel officer then approves the submission.
4. The personnel officer forwards the unit diary (in diskette form) to the ASC.
- 4a. A paper copy of the unit diary and the documents are forwarded to the service record section where the documents are filed in the service record and applicable entries are made in the service record itself.

All entries made by the unit diary section and the service record section are made in accordance with the provisions of the directives outlined in Appendix B.

APPENDIX D

MCDOSET ANALYSIS OF DETECTED ERRORS

Organization:

Total Records Mtnd.	Records Examined	Records w/Errors	Total Errors Detected	Avg. Error Per Rec in Error	Distrib of Errors	
					Monetary No.	Advisory No. %
806	29	15	18	1.2	*a 12	6
					66.7%	33.3%

Actual Monetary Errors det'd			
Overpayments Ttl. No. Avg.	Underpayments Ttl. No. Avg.	Standard Error	Monetary Error Rate %
\$6,177	\$199	*d 9.27 %	*e 34.48%
*b (10) \$618	*c (2) \$100		

\*a, b, c,: Note that b+c = a

\*d : Computation of the standard error is computed as follows:

$$P = \frac{\# \text{ records w/errors}}{\# \text{ records examined}} \quad \text{Variance} = \frac{PQ}{N-1}$$

$$Q = 1-P \quad \text{Standard Error} = \sqrt{\text{Variance}}$$

$$N = \# \text{ records examined}$$

$$F = \frac{\# \text{ records examined}}{\# \text{ records maintained}}$$

\*e

Monetary error rate is computed from this data as follows:

$$\frac{\# \text{ Monetary errors}}{\# \text{ records examined}} \div \text{average error per record in error}$$

APPENDIX E

MCDOSET MONETARY ERROR RATE DATA

BN	Total Recds Mtnd.	Records Examined	Records w/Errors	Total Errors Detected	Avg Error Per Rec in Error	Distrb of Errors	
						Monetary	Advisory
A	758	25	1	1	1	1	0
B	699	25	6	7	1.2	2	5
C	718	25	2	2	1	2	0
D	604	29	4	4	1	3	1
E	700	29	5	6	1.2	6	0
F	593	26	8	8	1	8	0
G	703	25	14	22	1.6	13	9
H	806	29	15	18	1.2	12	6
I	741	36	15	17	1.1	15	2

BN	Actual Monetary Errors Det'd		Standard Error	Monetary Error Rate (%)
	Overpayments	Underpayments		
A	90	0	3.87	4.
B	2	2	8.54	6.67
C	529	4	5.48	8.0
D	102	103	1.89	10.34
E	1297	2000	7	17.24
F	1385	0	9	30.77
G	2027	208	9.95	32.5
H	6177	199	9.27	34.48
I	821	62	8.12	37.88

## APPENDIX F

### PERSONNEL OFFICER'S QUESTIONNAIRE

NOTE: Answer all questions as they applied to the 90 days prior to your last MCDOSET inspection. I realize that some factors may have changed "within" that 90-day time frame, but answer as best you can, and do not leave any questions blank.

1. Fill in the numbers to the chart below which reflect the actual personnel strength of your CONAD in the 90-day window prior to your last MCDOSET inspection. Indicate by a circle those 01's who did not work in your CONAD due to the Camp Augmentee Program, FAP, etc.

	0121	0131	0151	0193	0311	other
--	------	------	------	------	------	-------

E1-3

E4

E5

E6

E7

E8

2. How many 0170 warrant officers were working in CONAD?

- a. How many years of experience did each have as an officer performing as an 01? (If less than a year, use the appropriate fraction.)

3. How many 0180 officers were working in CONAD?

- a. How many years of experience did each have as an officer performing as an 01? (If less than a year, use the appropriate fraction.)

4. If your answer to both questions 2 and 3 was zero, what was the MOS of the personnel officer?
5. How many days was the entire CONAD unit deployed aboard ship or into the field? (Remember, we are talking about the 90 days prior to your last MCDOSET inspection.)
6. What are your additional duties in addition to being the personnel officer? Please list them.
  - a. What percentage of your day is taken by your additional duties?
7. How long have you been the personnel officer of your battalion?
8. How long has your personnel chief, or chiefs, been the personnel chief at your battalion?
  - a. How many years of supervisory experience does your personnel chief have in the 01 field?
9. Would you say that you had a high turnover of 01 personnel within your CONAD in the 90-day period prior to your last MCDOSET?

YES

NO

- a. Describe the turnover as indicated below:

Example Your input:	MOS	GAIN	GRADE	LOSS	GRADE
		E3			
	0121		E3	0131	E5

10. List the grade and MOS of those Marines who performed their duties in your unit diary section.

GRADE

MOS

11. Based upon your experience, what is the single most important factor which affects a battalion's performance on the MCDOSET? (For example, lack of personnel.)

12. In what area did your battalion experience the highest number of errors? (For example, BAQ, leave, comrats, etc.)

13. If you have anything you would like to add concerning this subject matter, please write it in the space provided, or, you can contact me at autovon 878-2401, leave your name and autovon extension, and I'll call you back.

## LIST OF REFERENCES

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